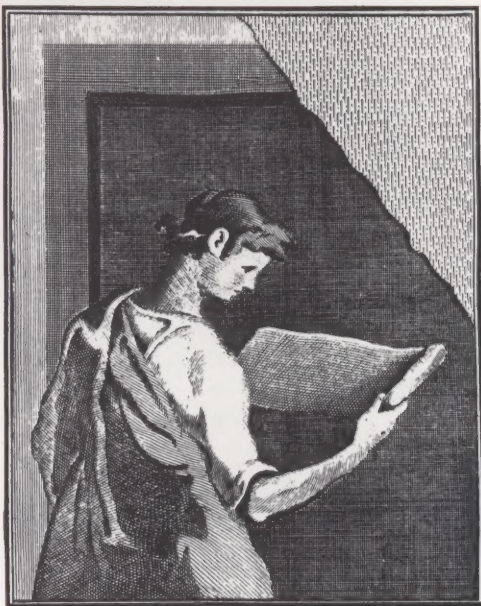


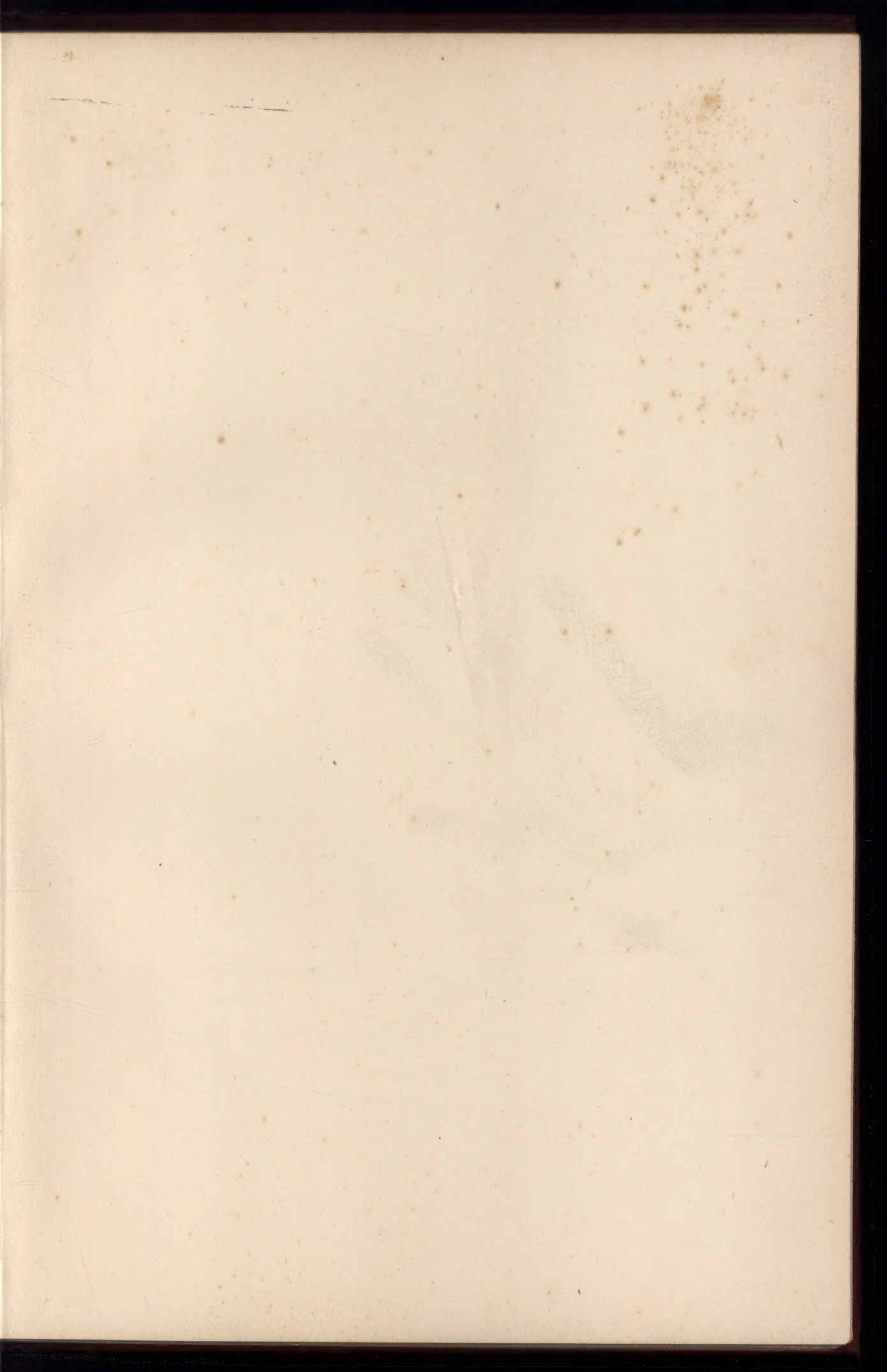
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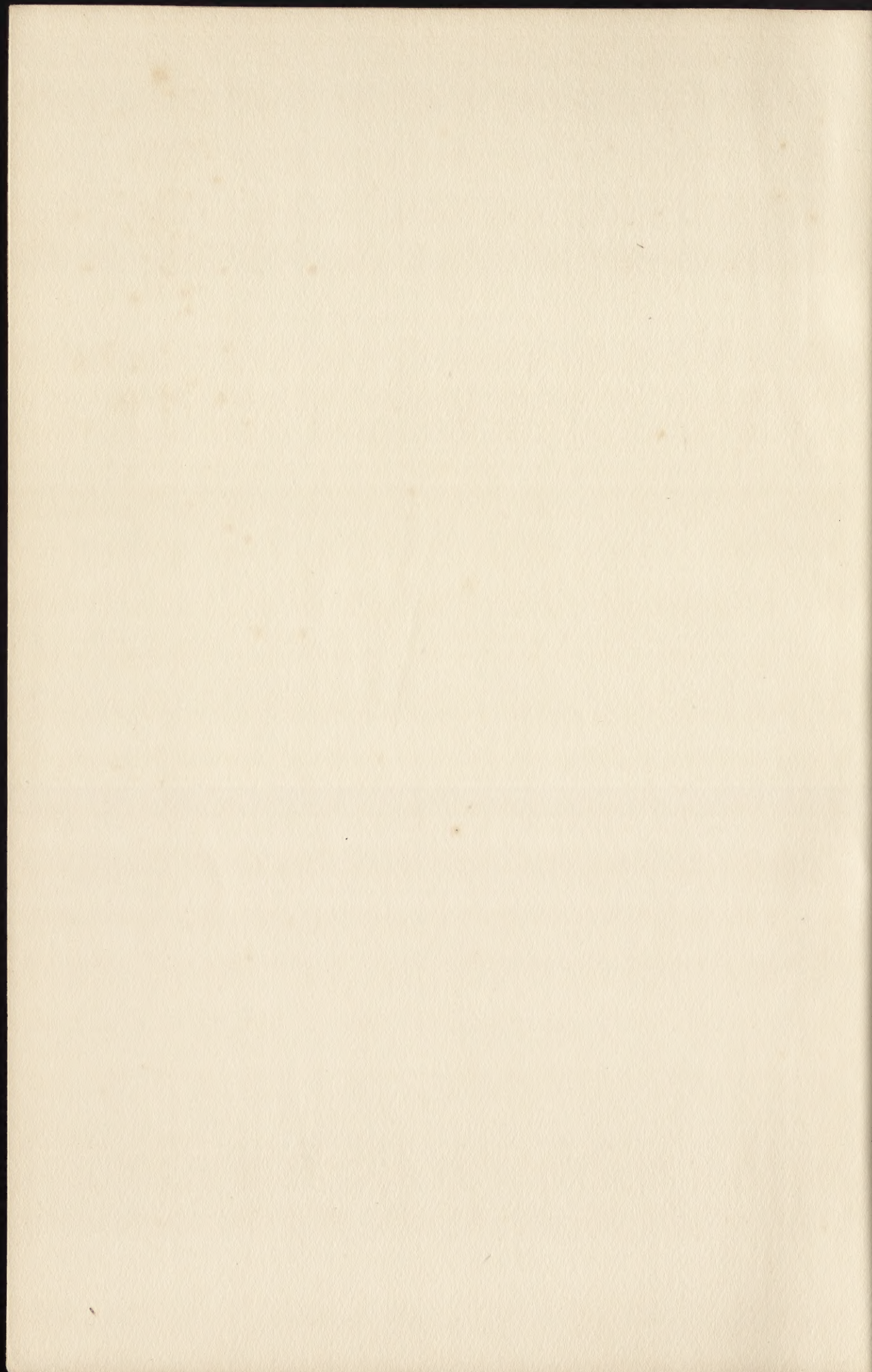


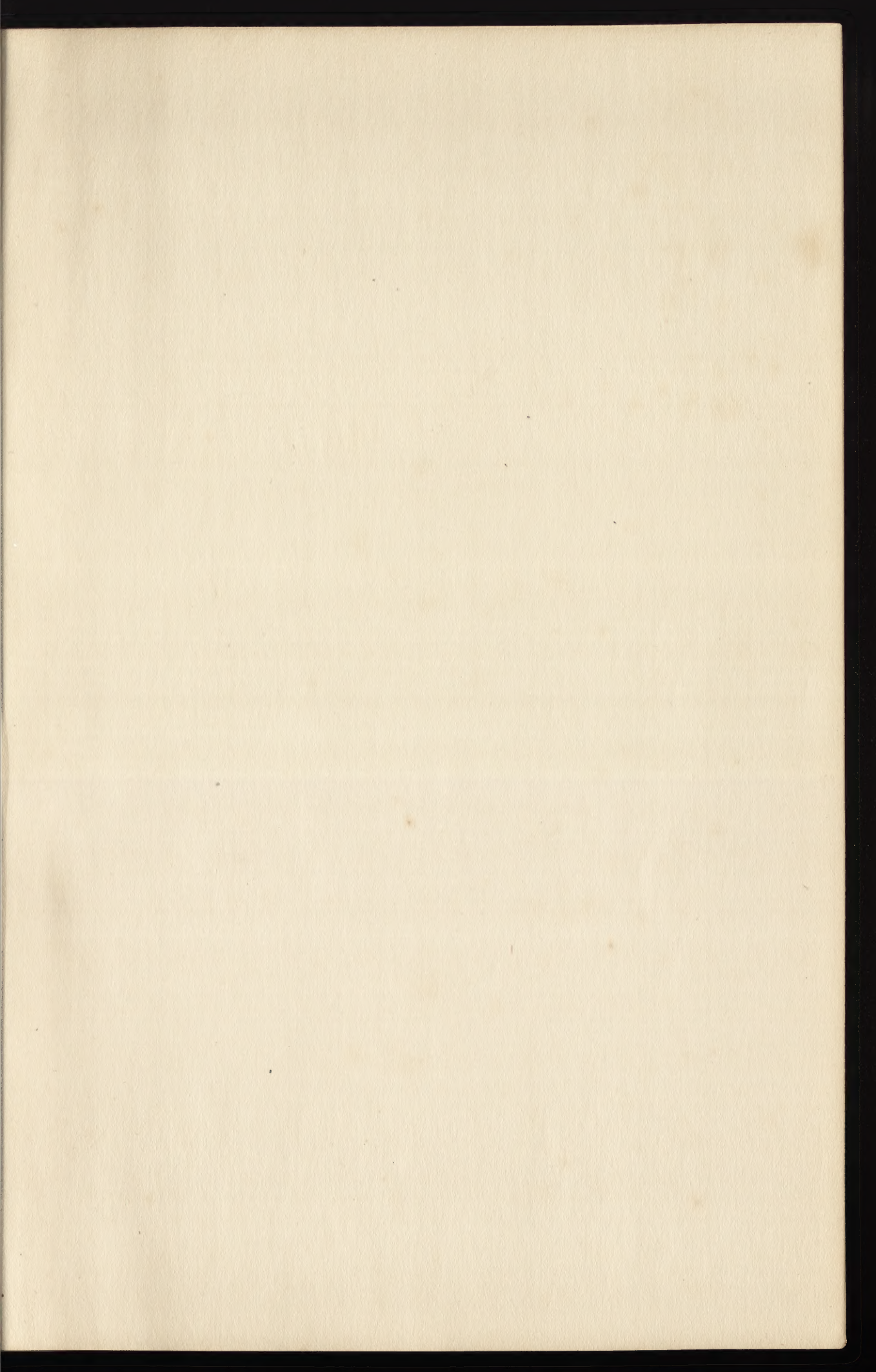
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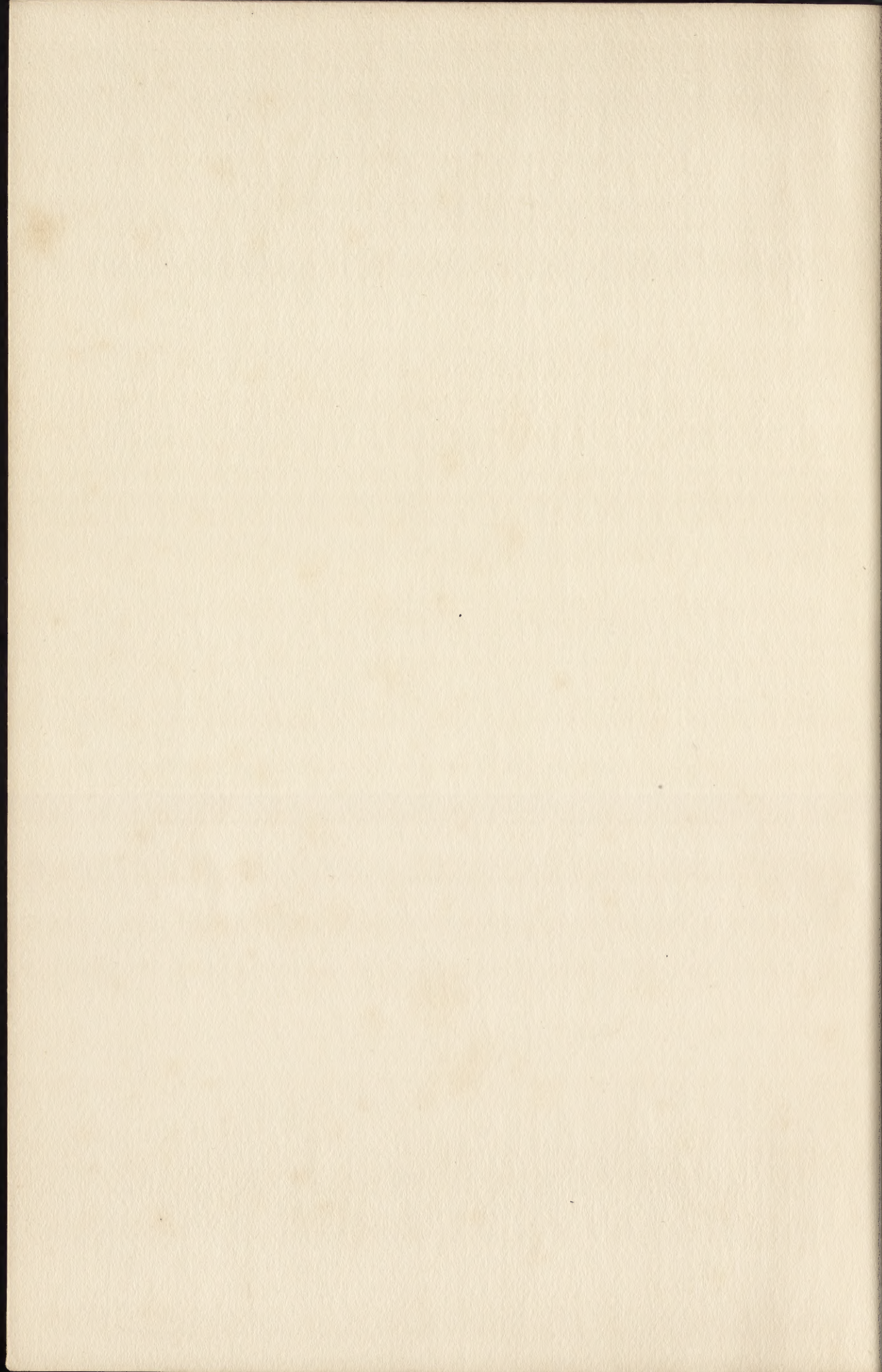


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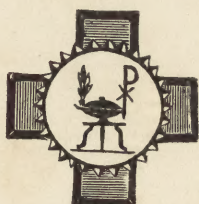








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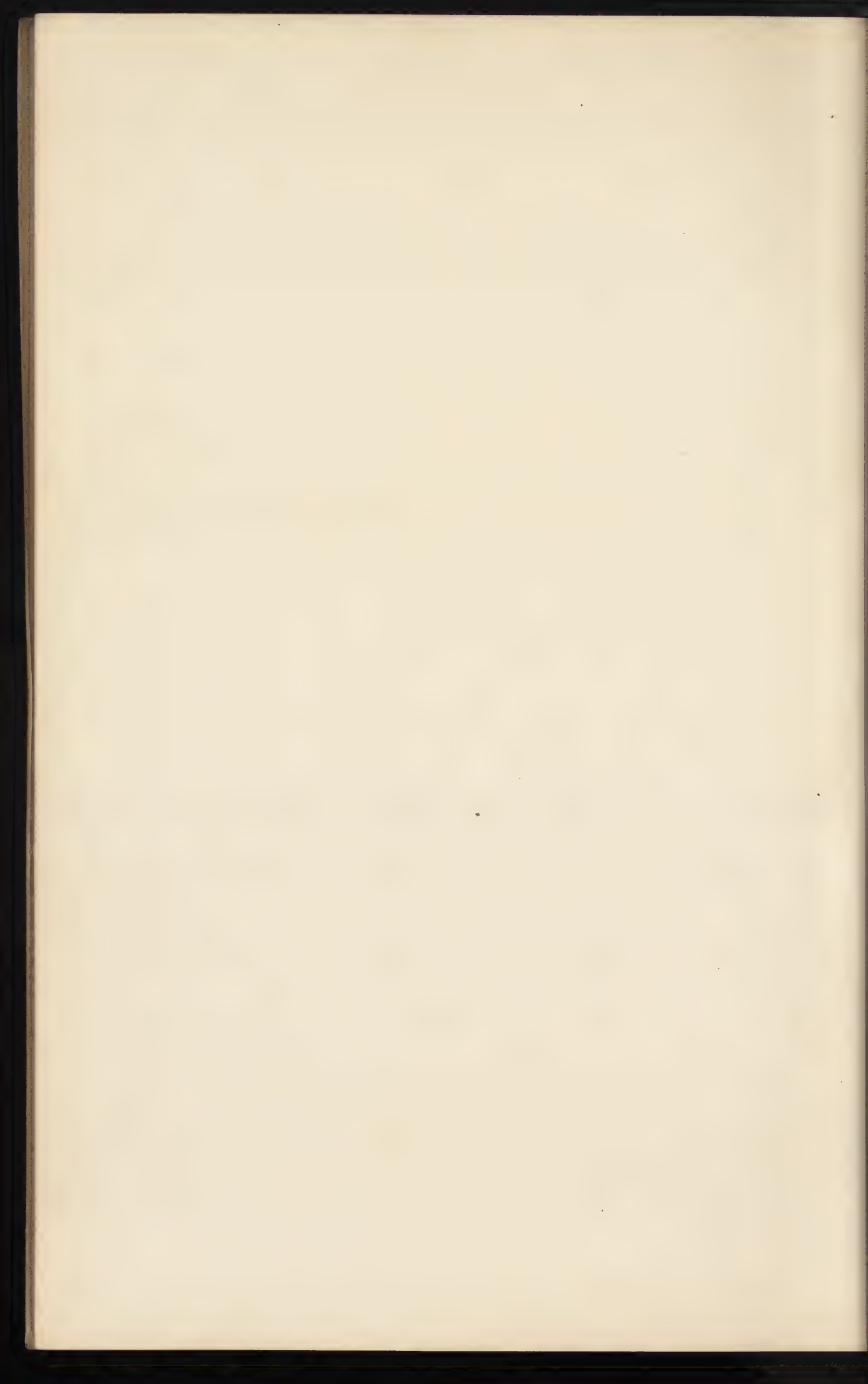
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DESERTED MOSQUE IN THE DESERT NORTH OF THE ALA-TAU
MOUNTAINS, TURKESTAN



NOMAD KIRGHIZ WATERING THEIR SHEEP ON THE STEPPES OF
SOUTHERN SIBERIA

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VOL. VI



PART I

JANUARY, 1907



CLIMATE AND HISTORY IN WESTERN ASIA

FROM the standpoint of climate western Asia and Europe are very different. Almost the whole of western Asia is semi-arid or desert, while Europe nearly everywhere has rainfall enough to make irrigation needless. In the semi-arid portions considerable snow or rain falls in winter. In spring the ground is carpeted with living green, but vegetation rapidly dies in the heat of summer. Irrigation is necessary for all but the earliest crops. Without it men must depend upon pasturage for flocks. But those in possession of a well-watered plain in a few decades can accumulate stores of food beyond the wildest dreams of the shepherd.

The nomad shepherd is a law to himself except as regards the most elemental relations, but even the crudest attempt at irrigation requires coöperation. Here, then, was a compelling inducement to coöperate that could have acted powerfully upon primitive communities in western Asia. May not this explain their rapid advance in civilization? The cultures of Babylonia and Egypt were 3000 or 4000 years old when the civilization of Europe began to take shape.

In primitive communities coöperation on a large scale is possible only when the many blindly obey the few. With them absolutism is the price they must pay for the fruits of a complex social organization. The riches that rewarded each new coöperative effort in the valleys of the Tigris and Nile made the inhabitants willing to pay the price. Was it not this process that so early transformed the patriarchal chief-

tain into the irresponsible despot, and checked the development of personal rights? At any rate, it is in the slowly developing culture of Europe that the idea of personal right and consequent political liberty has come to fruition.

In the nearer Orient the areas suitable for cultivation are many, but they are separated by tracts adapted only to nomad life. As a result, each irrigated district developed apart from its neighbors, and in most respects was sufficient unto itself. Its inhabitants spoke their own dialect, worshiped their own gods, and feared strangers, who were usually half barbarous nomads. In this way religion and custom became intertwined and connected in the thoughts of men with the very soil of their native land.

These lines of cleavage were broadened by another factor. Since absolutism had won the day, the gods, like the kings, were thought of as despots whose fiat created laws. Thus emerged the idea of absolute, even capricious will, an idea tersely expressed in the Muslim's contention that whatever Muhammad did was right because he, the Prophet, did it. Theoretically any deed may be right or wrong, according to the fiat of the divine will. The Pharisees worked out this theory and applied it to all the acts of daily life, which thereby took on, we can not say a moral, but a religious tinge. Islam has done the same. There is a right way to perform even the simplest action, and a wrong way. Unfortunately the laws of the different creeds do not agree. One Muslim sectary begins near the elbow when he washes his hands, another begins at the fingers. The firmer the faith of the community the greater the separation such disagreement produced. Nor is there a way of escape unless the fundamental conceptions just outlined regarding what constitutes the religious life be changed.

The history of the great Oriental empires is in the main the history of the city men, who inhabit the irrigated districts. Divided for many centuries into scores of principalities, only under the later Assyrians do we find these districts from the Caspian to the Nile united into a fairly compact empire. The pitiless massacre of local patriots or their enforced exile, and the ruthless destruction of local shrines, destroyed these little kingdoms forever, but the mingling of the nations thus accomplished seems to have made the survivors the more loath to accept strange gods. Religion, custom and nationality still were blended in thought, and the lines of cleavage that formerly divided districts now separated the parts of each composite community. To make this condition permanent it remained for the overlord to base his government upon it. So far as we can now see, this was first done by the Iranians under Cyrus and Darius. To them belongs the glory of first creating a true world empire, in which the peculiar institutions of each nationality were respected under the shah who thus fulfilled his grandiloquent title, "King of kings, King of countries, King of all the various tongues." He held together all the city men of west-



TENTS OF THE NOMAD KIRGHIZ TARTARS OF TURKESTAN

ern Asia from the Jaxartes and Indus to the Nile and Ægean. The vision of a world empire never since has been wholly absent from the minds of kings. It was the Greeks who introduced it to the west. Under them some centers of European civilization were added to the Asiatic empire. For a brief period the city men from Athens to Samarkand and Kabul acknowledged one overlord, and even after their political separation the bonds of trade and common interest still held them together. It was for the first and last time in history. We see in it the end of a long historic development which had begun many centuries before and on the whole had moved steadily forward to this great culmination.

So far the student may trace the story of the nearer Orient with something like enthusiasm. For the next 8 centuries he may still find signs of progress along social and commercial lines. Then the horizon darkens, and for nearly a thousand years, with failing faith in the optimism that calls all history a record of "progress," he traces step by step a steady disintegration of the higher forms of civilization until almost all the glories of the past disappear in the barbarism of the XV century. What is the cause of this strange *denouement*?

This question is answered in part by noting another result due to the climate. In a semi-arid region the snows or rains of winter assure a fine crop of grasses over upland and valley. In the summer and fall this vegetation, now seeded and dry, still affords excellent pasturage, while running water can usually be found within 10 or 15 miles at the most. These are the conditions which have produced the nomad life. A tribe of nomads may plant a little grain and may live in dugouts during the winter, but their chief dependence for sustenance is upon flocks. During the summer and fall this compels them to adopt a wandering mode of life (usually within fixed limits), because their large flocks will exhaust the supply of fodder accessible from any given point. Thus the very conditions that produced the crowded

populations in the irrigated plains, surrounded these plains with nomadic shepherd tribes. The settled population could never absorb them, for it could not change the character of the dry mountain slopes that determine their mode of life. Nomad and city man thus from the first have dwelt side by side; the Arab in his felt tent encamped in the environs of Nippur as his descendant now pitches outside of Bagdad.

The nomad is a warrior by nature. His active life in the open air inures him to hardship, and its ample leisure and wild freedom compels him to mastery in the use of weapons. Thus equipped, he has always coveted the wealth of the cities. The city man is too busy to learn well the arts of war. It is easier to fortify the towns and to hire good



THE HORSE MARKET AT SAMARKAND

warriors. But when for any reason the treasuries were empty, when the central power was weak and each district compelled to shift for itself, then always followed the sacking of villages and the investment of cities by the hungry shepherd hordes. The irrigation canals, constructed with great labor, became a prey to the winter freshet; the dams, sometimes made at great expense of trimmed stone, in a few years were useless, and so in countless valleys scenes of verdure changed to barren wastes, except the strips of green that marked the courses of the streams that had served the former cultivators so well. Persia and Turkey at present are full of such ruined or partially ruined districts.

Nor is that all. The needs of the nomad are confined to absolute necessities and such scant comforts as he can carry with him. He lives in camps all the days of his life. This simplicity is imposed upon him

by his surroundings; it is an unchanging factor, as true now as it was 5 milleniums ago. The complexities of any advanced civilization are almost incomprehensible to him. His very presence alongside the city men has been a clog upon development, and does much to explain the fixedness of conditions in the Orient. But the nomads have not simply lived alongside the city men. Time and again have they overrun the city districts and infused themselves among the settled population. At each such time progress was stopped until the new elements were brought up to the cultural standard already attained.

Yet in spite of these facts the nomads in western Asia, outside of Arabia, have never checked for long the growth of civilization. The



STREET IN THE SART SECTION OF SAMARKAND JUST AS THE CALL TO PRAYER HAS BEEN GIVEN AT NOON

great catastrophes have always been caused by invasions from without. As population increased slowly among the nomads, the pressure of numbers was not felt in Arabia or Siberia until a comparatively late date. It was the climatic conditions that made the invasions so formidable when they did occur. The isolated city districts did not present a united front. The semi-arid expanses enabled the invaders to continue their old mode of life, instead of blending with the settled population. Swarms of native nomads were ready to aid them in their work of destruction. A few thousand foreigners added to the lawless elements already present have sometimes sufficed to turn the scale against the higher social order. This is shown by the rise of the Seljuk Turks.

One of these great catastrophes occurred a little before the Christian era, when the Greco-Bactrian power was overwhelmed and all the

city districts from the Sea of Aral to the Indus opened to receive new populations. Six centuries later came the Arab conquests. In their case the records are full enough to show that the injury done by the first inroads was not half so serious as that caused by the long years of disorder that followed, due largely to the restlessness of the newcomers. From the X century on a gradual but constant infiltration of Turkish and Mongol tribes prepared the way for the terrible scenes of the great invasion of the XIII century. These tribes kept their identity because the waste regions rendered it possible for them to live in isolation, and the baneful influence they exerted in spite of their numerical inferiority to the settled inhabitants is due largely to the native Afghan and Kurdish tribes that aided them.

A comparison with conditions which have prevailed in Europe will emphasize these facts. About 4 centuries before Christ came the great Celtic migrations. These barbarians wiped out the Etruscan power in the valley of the Po and pressed on into Etruria. Their conquest transferred the supremacy of the city states in central Italy from the Etruscans to the Romans. It had no other result of great importance, for the reason that the climate encouraged only one mode of life, that of the settled agricultural community. In a few generations the invaders had all yielded to this influence. Under these favoring conditions the Romans created what might be called an Italian nation, whose common ties not even a Hannibal could undo. What they accomplished in Italy they later repeated in Spain and Gaul, where homogeneous populations grew up. Each new horde of barbarians who have entered these lands—Visigoths, Franks, Burgundians, Lombards, Norsemen and Moors—have all in time been absorbed into the older population.

Rome's great rival, Carthage, was situated on the coast of a semi-arid land. Behind her lay the barren mountains of Numidia, whose inhabitants she could never assimilate, because the conditions of climate imposed upon them a different mode of life from hers. They served her as mercenaries when she was prosperous, and became the allies of Syracuse or Rome in her hours of defeat. Under Roman rule they remained quiescent, and cities grew apace, yet their real character remained the same, and after 5 centuries the cultivated districts fell an easy prey through their aid to Vandal and Arab. A thousand years have since passed, yet the French, who are now reclaiming this land, find it less advanced than the Romans left it.

Rye, N. Y.

E. CUTLER SHEDD.



CUNEIFORM TABLET FOUND AT BOGHHAZ KEUI.—Prof. Sayce announced to the Society of Biblical Archæology at a recent meeting a great discovery of a cuneiform tablet at Boghaz Keui, which he hopes will help in dissipating the mysteries attaching to the Hittite language.

THE DEVELOPMENT OF THE SYSTEM OF BOUNDARY FORTIFICATIONS IN BRITAIN AND GERMANY, UNDER THE ROMAN EMPIRE¹

PART I

BOUNDARY OF THE ROMAN EMPIRE IN GERMANY

THE erection of permanent fortresses, other than the walls of cities, and the employment of soldiers in uninterrupted garrison service, found no place in the military experience of the Romans during the greater part of the republican period. Provision was usually made for the protection of outlying districts by establishing Roman or Latin colonies at important strategic points. The citizens of these towns were bound to hold themselves in readiness to defend their walls upon the approach of an enemy. They were not, under ordinary circumstances, withdrawn from the usual occupations of civil life.

When it became necessary to secure the possession of extensive provinces lying outside of Italy permanent garrisons had to be stationed along the frontiers and suitable works had to be erected for their shelter and defense. Later, the necessity of providing adequate protection against the incursions of barbarians into provincial territory led to the construction of continuous lines of fortification along the land boundaries of the Roman Empire. Recent excavations and discoveries have made it possible to trace, with a fair degree of accuracy, this system of defensive works, which forms a characteristic and not uninteresting chapter in Roman military history. But the discussion in the present paper will be limited to the boundary defenses reconstructed by the known remains in Britain and Germany, the countries where most progress has been made in examining the camps and fortified barriers.²

¹Presented with stereopticon illustrations at the Classical Conference at Ann Arbor, Mich., March 29, 1906.

²While it does not fall within the scope of the present paper to give an exhaustive bibliography of the extensive literature which deals with the Roman *lines* in Germany and the corresponding fortified line in Britain, the attention of those who desire to make a thorough investigation of the subject may be directed to a few of the more important works.

The most convenient book which presents anything like an exhaustive treatment of the remains along the frontier in Northern England is the work of Bruce, *The Handbook to the Roman Wall* (4th edition, London, 1895). The observations and conclusions of Bruce should be compared with and, to some extent, corrected by those of Krüger, which appeared in an article in the *Jahrbücher des vereins von Altertumsfreunden in Rheinlande* (Bonner Jahrb., Heft 110, 1905) entitled *Die Limesanlagen in nördlichem England*. The results of the work of excavation which has been carried on in Germany since 1891 at the expense of the imperial government have been published under the title *Der obergermanisch-raetische Limes*, by O. von Sarwey and Dr. E. Fabricius (Heidelberg). Summary discussions of the results of these important excavations and investigations will

Cæsar crossed the Rhine on two occasions by means of wooden bridges, which had been hastily erected,³ in 55 and 53 B. C. The first bridge was removed directly after the return of the expedition for which it had been constructed; the second, however, which was erected a little above the first, was not entirely destroyed, although the portion which adjoined the German bank was pulled down. The remainder was allowed to stand in readiness for future operations. The approach to both bridges had been fortified. The fortified camp which protected Cæsar's second bridge received a permanent garrison of 12 cohorts. Its location, opposite Urmitz, a little above Andernach, has probably been determined, and its ground plan ascertained. The identification of the remains there discovered seems certain.⁴ It extended for a distance of 4-5 of a mile (1275 meters) along the left bank of the river. The fortifications on the land side had the form of an irregular semicircle and were 1½ miles (2.5 kilometers) in length. These defenses consisted of an earth rampart strengthened on the outside by two ditches. In the bed of the Rhine, the course of which is almost east and west at this point, were found piles which at one time must have formed part of a bridge. Their position in line with the axis (*decumanus*) of the camp, which in this instance would be a line extending from the south gate in a direction at right angles to the course of the river, points to their identification as remains of the second bridge of Cæsar. The works at this point were the first Roman fortification on the Rhine. Cæsar made the river the boundary of Roman dominion from Lake Constance to the sea.

This boundary was provided with a comprehensive system of defenses by Drusus, the step-son of Augustus, probably in 12 B. C. According to Florus (II, 30) he erected 50 forts (*castella*) at intervals along the Roman or Gallic bank of the Rhine. These were intended, no doubt, to serve as protection for detachments of auxiliary troops, the cohorts and *alæ* which were organized and recruited from among the subject peoples of the Empire. Mainz (Mogontiacum) and Castra Vetera (near Xanten) had already been selected as headquarters for the legions, the divisions formed of Roman citizens.

Thus, near the beginning of the first decade B. C., we find an arrangement which was characteristic of the distribution of the forces during the whole period of the occupation of the military boundary,—

be found in the following articles and monographs: Herzog, *Kritische Bemerkungen zur Chronologie des Limes* (Jahrb. d. Ver. v. Altertumsfr. im Rheinlande). Heft 105 (1900), page 50-75; Ernst Schulze, *Die römischen Grenzanlagen in Deutschland u. das Limeskastel Saalburg*, (Gütersloh, 1903); E. Fabricius, *Die Entstehung der römischen Limesanlagen in Deutschland* (Trier, 1902); Koepp, *Die Römer in Deutschland* (Monographien zur Weltgeschichte, Leipzig, 1905). With regard to the Saalburg the reader may consult the description by von Cohausen and L. Jacobi, *Das Romerkastell Saalburg* (Homburg, 1902), or a short guide by H. Jacobi, *Führer durch das Romerkastell Saalburg* (Homburg, 1905).

³Cæsar, *Bell. Gall.* IV, 16-19 and VI, 9-10 and 29.

⁴Nissen and Koenen, *Caesars Rheinfest*, Jahrb. des Vereins von Altertumsfreunde im Rheinlande (Bonner Jahrb., Heft 107 (1899), pages 1-29).

the combination of large fortified camps for the legions with a series of smaller forts for the *alæ* and cohorts. The forts erected under the orders of Drusus consisted of small rectangular areas enclosed by ramparts of earth. The traces of one of them were discovered near the site of Cæsar's second bridge, partly enclosed by the larger fortifications thrown up by him as described above.

We shall pass over the period of Roman dominion between the Rhine and the Elbe; it was apparently too ephemeral to permit of the development of a regular system of forts. After the recall of Germanicus in 16 A. D. the Rhine marked again the veritable or approximate limit of Roman authority throughout the greater part of its course, although the territory about Weisbaden, defended, perhaps, by a fort which Drusus had erected on Mount Taunus,⁵ was retained as a part of Upper Germany and farther down on the right bank of the Rhine an unoccupied military zone added to the security of Lower Germany.

The decisive step which led to the establishment of a permanent land boundary east of the Rhine was taken by Domitian as a result of the war against the Chatti in 83 A. D. The ability of Domitian has been misjudged because of the ridicule heaped upon his military enterprises by contemporary but prejudiced writers.⁶

But recent excavations in the lower Main valley have shown that his campaign in that quarter had results of lasting importance for the extension of Roman sovereignty. Five legions with their complement of auxiliary troops, cohorts and *alæ*, starting from Mainz (*Mogontiacum*) as base, drove the Chatti from the lower Main valley and then dislodged them from their fastnesses on the summit of Taunus.

Several forts were at once constructed in the plain to be garrisoned by bodies of the auxiliary troops. The description of the forts has been reserved for a latter part of this paper; but we may remark here in anticipation that the fortified camps intended for the cohorts and *alæ* as well as the larger ones of the legions and the small stations for detachments, of which we shall have occasion to speak presently, were nearly always rectangular in plan. It is convenient to designate as "cohort *castella*" or cohort forts, the fortified camps whose size was calculated for single cohorts or *alæ*, bodies of 500 or 1000 men. These must be distinguished from the large legionary camps on the one hand and on the other from the small forts for single detachments.

Remains of buildings have been found in the cohort *castella* in the plain between the lower Main and Mount Taunus showing brick-stamps with the names of the legions which were assembled in this region only at the time of Domitian's campaign against the Chatti. This proves that measures were taken by this emperor which secured the permanent occupation of the territory by the Romans.⁷

⁵Tac. *Ann.* I, 56.

⁶Tacitus, *Germ.* 37, *Agricola* 39, 2; Plin. *pan.* 16; Dio Cassius LXVII, 4, 1.

⁷Cf. Fabricius, *op. cit.* p. 5.

When the auxiliary troops had been provided with fortified camps the Romans proceeded to lay out the fortified boundary or *limes*. The word *limes* related etymologically with *limus*, meaning "cross-wise" or transverse, and *limen*, "threshold," signified originally a neutral zone separating the lands of different rural proprietors;⁸ it is described as a boundary having width, and served regularly as a highway. So the *limes Imperii Romani* was a road which marked the limit of Roman territory. The word, even when used in the latter connection, did not imply, at first at least, the existence of defensive works. Later, when circumstances led to the erection of forts along the boundary with uninterrupted defensive barriers to exclude the barbarians, the word may have come to suggest to the Roman mind, as it does to ours, a system of military works.

Frontinus⁹ speaks of a recent extension of a *limes* 120 miles in length. This would correspond with the boundary traced by Domitian from the Rhine near Neuwied to the Main at Hanau, embracing the territory which he had acquired. This line, represented by a cutting through the forest, followed in general the summit of the Taunus range in an irregular course to conform to pre-existing canton boundaries and the requirements of signal service. For at points of vantage wooden towers were erected in which soldiers were posted to watch the movements of the barbarians and signal to the cohort *castella* in the plain the warning of danger. The signals were thus transmitted by means of fire.

At convenient intervals along the *limes* small forts or earthworks were provided for the detachments detailed from the *castella* for sentinel duty on the boundary. One of these, which may be selected as a typical example, was discovered on the site of the Saalburg. It had an area of 100 yds. by 107 yds. (92 by 98 meters). At first the chief purpose of the *limes* was to control communication to and fro. The barbarians were permitted to cross the *limes* only when disarmed and under surveillance and upon payment of custom dues. The exchange of wares was limited to a few fixed points along the line.¹⁰ An exception to these regulations was allowed in favor of the Hermunduri, who dwelt to the north of the boundary of Rhætia.¹¹ In accordance with the purpose of the boundary occupation naturally fortresses were erected at points where highways traversed the boundary line.

Early in the reign of Trajan the boundary was extended along the course of the Main from the point of termination of the boundary line of Domitian to Wörth. From there a land boundary was carried across the Odenwald to a point on the Neckar near the mouth of the Jagst. The river Neckar formed the continuation of the new line to a point near Cannstadt where the land boundary commenced again

⁸Mommsen, *Römische Geschichte*, vol. 5, pages III, III2 (note).

⁹Frontinus, *Strat.* I, 3, 10.

¹⁰Tac. *Hist.* IV, 64, *Germ.* 41.

¹¹Tac. *Germ.* 41.

and was extended across the country as far as the northwest corner of the province of Rhætia. This extension effected the inclusion of the so-called tithe lands (*agri decumates*) within the territory of the Roman Empire. This region was already partially occupied by adventurers from Gaul, such as might be termed "squatters." Tacitus describes it as a tract of insecure possession.¹²

The arrangements on the new line were similar to those north of the Main except that the cohort castella were erected on the boundary itself and not in the interior. Under Trajan the *limes* boundary was probably continued along the northern frontier of Rhætia with the necessary forts as far as the Danube at Eining.

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THE TROGLODYTE DWELLINGS OF BAKHTCHI-SARAI

BAKHTCHI-SARAI, thirty-eight miles northeast from Sévastopol, is one of the most interesting centers from which to visit a characteristic class of archæological remains in the Crimea. This is a city, of about 15,000 inhabitants, which was given up for the exclusive use of the Tartars by Catherine II., who visited it in 1787. Here the traveler will become familiar with the minarets of Moslem mosques, from whose top the muezzin's call to prayer is given at the appropriate times throughout the day. As in all Moslem towns, booths line the narrow streets, each man plying his trade, so that all may see his work. The customer has only to halt, not turning in from the pavement, to lean upon the counter or shelf, which is flush with the street. Early in the day the city is a busy scene of traffic, but at sunset wooden shutters are let down, and one sees only deserted streets, with blank walls on either side. Everything is in striking contrast to the centers of archæological interest in the near vicinity.

It should be premised, however, that the archæological remains in the interior of the Crimea are in marked contrast to those which abound along the shore. The latter are almost all distinctly of Greek origin; the former are more varied in their character, and bear marks of different nationalities and of a longer period of history. Extensive Greek remains are found at Chersonese, on the peninsula a little farther out than Sévastopol, and, upon the eastern side of the Crimea, at Theodosia. More extensive, still, are the remains at Kertch, on the Cimmerian Bosphorus. These have been extensively excavated by the Russians, and from them a remarkable collection of objects of art has been made in the Museum of the Hermitage in St. Petersburg. A partial account of the Greek remains at Kertch was given in the

¹²*Germ.* 29.

RECORDS OF THE PAST for November, 1905. Near the mouth of the Don, as it enters the Sea of Azov, the extensive ruins of Tanis, founded by a colony from Miletus in 650 B. C., yet await exploration.

The southern shore of the Crimea is bordered by a picturesque mountain range, chiefly composed of Jurassic rocks, which rise to a height of about 5,000 ft. As is well known, this mountain chain is such a perfect protection from the cold winds of the north that the southern exposure, overlooking the Black Sea, has a climate of rare mildness and salubrity, making Yalta one of the most charming places of the world, and the favorite residence of the Czar and as many of the nobility of Russia as can find room for their palaces. Upon surmounting this range, one looks out upon the extensive plains which stretch northward without interruption to the Baltic Sea. The slopes of Cretaceous and Tertiary rock which lead down to this plain are deeply



STREET OF BAKHTCHI-SARAI—IN THE MORNING

channeled by a number of small streams, of which the Belbek, the Katcha and the Alma are prominent. While the climate of this northern slope is so dry and severe that the soil furnishes only a scanty amount of pasturage for flocks, the river valleys, protected by the precipitous faces of their eroded channels and supplied with abundant water from their mountain sources, are extremely productive, and have for ages offered peculiar attractions to the races which have roamed over the territory beyond the reach of the adventurous traders who from the earliest times have established their trading-posts and developed their peculiar civilization in every accessible harbor along the coast.

There is nothing new in the fact that a peculiar people are in possession of the interior of the Crimea. The "Crim Tartars" are the natural successors of the Scythian tribes that for ages occupied what



VIEWS AT BAKHTCHI-SARAI

- I. BOULDER UTILIZED FOR A CHAPEL. 2. ENTRANCE TO THE CHAPEL IN THE BOULDER. 3. A CHAPEL IN THE CLIFF.
4. NEAR VIEW OF THE CRYPTS

was to the classic nations the unknown regions of the north. Yet these same valleys and the bordering mountain fastnesses have all along presented especial attractions and offered asylum to various classes of religious enthusiasts, who have found in them the seclusion and protection which were forbidden elsewhere.

Among the most interesting ruins are those of Mangoup-Kalé, upon the south side of the Belbek Valley, and about half-way between Bakhtchi-Saraï and Sévastopol. These are situated upon an eroded mountain summit, 1,000 ft. above the valley, which commands an extensive view of the Chersonese peninsula upon the one side, and of Eupatoria, the ancient Coronitis, to the north. The precipitous faces of the calcareous sandstone cliffs, which abound here, are honey-

combed with crypts excavated in the rocks, which have been used from the earliest times. Many of these are connected with each other by narrow and perilous paths, cut in the face of the rock. These are said to be "provided with reclining niches, watertanks, pits for holding supplies, and in some instances with fireplaces."

The acropolis, or citadel, is surrounded by a formidable wall, 12 ft. in thickness. This is bordered by a terrace upon the precipitous side, which contains a palatial façade, of fine architectural proportions, ornamented by designs in a style peculiar to the Armenians. What is left of this edifice is 41 ft. long by 19 ft. in depth.

Adjoining the acropolis there is, according to Telfer, "a crypt from which two flights of steps lead to a larger crypt chamber, measuring 21 ft. by 17 ft., and 8 ft. 4 in. from floor to ceiling, the roof being supported by a pillar of one piece with the rock. Seven doorways lead out of this lower chamber to 6 separate closets, each from 7 ft. to 8 ft. square, and it also communicates by another opening with a shelf in the rock outside, which overlooks the valley of Kodja-Salâ at a depth of about 1,000 ft. We here have a remarkable and unique suite of rock-cut dwellings, which, considering its disposition and accessories, may have been, as Dubois suggests, the residence of a king of the Tauri."

This conspicuous point is supposed by Dubois to be "the site of Chabum, one of the fortresses constructed by Scylurus, the Tauro-Scythian king." Towards the close of the IV century, A. D., after the departure of the Huns, the Goths occupied the stronghold, and left upon the remains the marks of the Christian ideas which had been introduced among them by captives made in their wars with the Romans. Over these Christians the Emperor Justinian extended his protection until the region was conquered by the Khozars, in the VIII century. Meanwhile the Khozars were converted to Judaism. Following the Khozars, the Comans occupied the region in 1050, these in turn being displaced by the Mongols in 1237. Then came the Genoese, and later the Turks. Nevertheless, the Goths were never wholly displaced, and it is related that 40 castles remained between Mangoup and the Chersonesus, "in each of which a separate idiom was spoken, many of the men in them being Goths, whose tongue was a dialect of the Teuton." Now these strongholds are entirely abandoned, but as late as 1800 a few of the members of the Karaite sect of the Jews remained in the stronghold.

Within a day's ride of Bakhtchi-Saraï there are 3 centers of extreme interest, an account of which can best be given in the shape of a journal, made during a visit early in October, 1905. Obtaining a driver and a dragoman, we left the crowded streets of the city early in the day, and drove for about two hours southward across the elevated country partially dissected by the upper branches of the Katcha. The bare rocks offered but a scanty herbage to the few flocks of sheep which we met, watched over by lonely shepherds. But there was a



SOUTH SIDE OF THE PROMONTORY OF TCHOUFOUT-KALE, WITH THE
KARAITE SCHOOL IN FOREGROUND

constant stream of carts, loaded with luscious fruit, on its way to the railroad station to be taken to the northern capital of the empire. Upon approaching the valley of the stream, everything was changed. Such loads of apples as were being boxed ready for market, and such jolly, happy bands of peasant girls as were going from one orchard to another to help in the picking, made it difficult to believe that want had ever touched the country. A striking feature of the scenery between the cliffs, which are about a mile apart, is two gigantic columns of calcareous rock, mysteriously left in the progress of the general erosion of the valley. Our photograph, while showing well one of the columns, fails to show the precipitousness of the retreating face of the cliff behind it, since the camera had to be elevated in order to get the view at all.

Two or three miles farther up the valley we reach the crypts of Katchikalén, which are excavated in the cliff of calcareous sandstone rising about 2,000 ft. above the bed of the stream upon the north side. At the base of the cliff is the modern church of St. Athanasius, around which are gathered a number of Greek monks, supporting themselves by cultivation of the fields, but whose spare time is occupied by keeping up the services of the church, and retiring to these crypts for meditation. With an abundance of straw to protect them from the hardness of the rocky floor, and with the magnificent outlook of natural scenery which opens before them through the doors of the crypts, religious meditation would seem here to be far from irksome, and to have everything to aid the worshiper in looking from Nature up to Nature's God. But, as a matter of fact, the monks look dull and uninteresting, as though little affected by the impressiveness of the scenery surrounding them.

Upon ascending the winding pathway, not to the summit, for that is impossible to reach from this side, but to the middle of the precipice, where the crypts are thickest, both the bewilderment and the interest became extreme. The path leads by many immense boulders that have fallen down from the face of the cliff in times long gone by, some of which are now utilized for chapels. One is surmounted by a cross, while the interior has been excavated into a commodious room, and furnished with all the paraphernalia of a church service. How many such there were we could not learn. Two of the most striking ones appear in our illustrations.

In saying that the face of the cliff is honeycombed, we are not speaking figuratively, but literally, as our views will show. In many places they rise story above story, while it was difficult to see how access to them could have been obtained. Many of the crypts are compound, several of them being connected by secret passages; some, also, were provided with niches and bins, and with winepresses and reservoirs. The whole place was rendered impregnable by nature, except upon the northwest side, where a strong artificial wall had been built.

Leaving the valley of the Katcha at Shoury, and going northward up the rocky valley of the Syrbey, and passing two or three highly cultivated estates, one comes in the course of an hour to Tepékermen ("castle on the hill"), which contains upon its summit the most perfect and varied of all the crypts in the peninsula. Here, on the south and west side of the precipitous summit (1,000 ft. above the valley), crypts appear in successive tiers, with steps along the exterior surface of the rock communicating from one to the other. "All have recesses, niches, reclining places, and bins, economy of space having evidently been studied in their distribution." Among the excavations is a chapel containing a number of illegible inscriptions in early Greek characters. In front of the chapel are pits in the rock filled with human bones. None of these crypts are now utilized, while in number they are to be counted by the hundred.

About an hour farther over the highlands to the north, one reaches what is in many respects one of the most interesting places of all—the "Valley of Jehoshaphat"—into which projects a promontory, with precipitous faces on either side, several hundred feet in height. The surface is covered by massive ancient ruins, while many passages lead down to extensive excavations, with the windows opening out upon the face of the precipice below. The neck of the promontory is crossed by a solid wall of defense, which is penetrated by a single gateway. This place is now known as Tchoufout-Kalé, or "Jewish Fortress," and is occupied by the sect of the Jews known as the Karaites, who are said to have been here since the year 460 B. C. The Karaites maintain that many Israelites went with the armies of Cyrus, Cambyses, and Darius in their expeditions into Scythia, and that to these were given the Tauric peninsula. The Karaites differ from the Talmudists in rejecting tradition and adhering strictly to the letter of the Bible. They



VIEWS AROUND BAKHTCHI-SARAI

- I. A REMNANT OF EROSION. 2. TEPE-KERMEN. 3. GENERAL VIEW OF THE CLIFF. 4. NEAR VIEW OF THE CRYPTS

number about 6,000 in the Crimea, and maintain a printing establishment at Eupatoria. They have a synagogue in Jerusalem, one of whose members visits the Crimea annually to collect contributions. The reputation of the Karaites for morality is unexceptionable, and their honesty and probity are proverbial. They have been much favored by the Russian government, and point with great pride to the splendid portraits of Catherine and of the Czar and Czarina, which have been presented to their chapel at Tchoufout-Kalé.

In the early part of the last century more than 1,000 of the Karaites were living on this rocky promontory, but now only three families are left, one of which is that of the very highly-educated, courteous, and fine-appearing rabbi, who is at the head of a theological school maintained in the place. The impressive building that appears in our

illustration is occupied by this school, which numbers 20 pupils. In the room adjoining, occupied by the family, there is a most exquisite ceiling of carved wood, several hundred years old. From our illustrations a faint idea can be obtained of the situation of the promontory in the midst of whose ruins this singular temple of learning now stands. The outlook takes in the whole coast from Eupatoria to Sévastopol, with the sea in the background. Everything around them reminds them of the past and of the tenacity of their religious ideas. Ruins of unknown age cover the surface of the peninsula. Crypts whose history stretches back to unknown periods of time are reached by winding staircases cut in the rock beneath their feet, where meditation can be aided by every material adjunct of which it is possible to conceive. Recently a collection of manuscripts, many of them dating from before the IX century, which had been kept at this school, were purchased by the Russian government for the sum of \$50,000. Near by is a cemetery with inscriptions dating from the I century of our era. One of them reads, "The Rabbi Moses Levi, died in the year 726 after our exile," which would correspond to 30 A. D. Another reads, "Zadok the Levite, son of Moses, died 4000 years after the creation, 785 after our exile," which corresponds to 89 A. D.

After bidding farewell to the courteous rabbi and his interesting wife, and taking a last look through the gorge towards Bakhtchi-Sarai, which about half-way down is occupied by the picturesque convent of Ouspensky, we drove rapidly over the rough road to reach the city just too late to hear the muezzin's cry for the closing prayer of the day, and to wend our way through Moslem streets that were well nigh as deserted as were the ruins of Tchoufout-Kalé.

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FRONT VIEW OF THE KARAITE SCHOOL LOOKING ACROSS THE GORGE



PILOT BLUFF NEAR M'EVERS MOUNDS

THE McEVERS MOUNDS, PIKE CO., ILLINOIS

ON THE west bank of the Illinois River, in Pike County, Illinois, stands the little hamlet of Montezuma, reached by boat down the river, or by way of the Alton R. R. to Pearl, and thence 8 miles by the daily stage. Along the river is a strip of rich bottom land about 600 ft. wide, and on this the village is located. Running east and west at right angles to this alluvial bottom are ridges from 30 to 50 ft. high, which break down abruptly at the eastern end in laminated limestone cliffs that face the river. Between the ridges flow small rivulets which seep out from rocks along the numerous gullies.

On these ridges, close to the town, on land belonging to N. D. McEvers, are 15 mounds, 8 of which have, this last winter, been more or less thoroughly examined. We give their size and the results of the exploration in the order in which the excavations took place:

- No. 1—24 ft. high; 130 ft. in diameter.
- No. 2—9 ft. high; 100 ft. in diameter.

- No. 3— 6 ft. high; 105 ft. in diameter.
No. 4— $8\frac{1}{2}$ ft. high; 100 ft. in diameter.
No. 5— 12 ft. high; 125 ft. in diameter.
No. 6— 3 ft. high; 20 ft. in diameter.
No. 7— 5 ft. high; 25 ft. in diameter.
No. 8— 4 ft. high; indefinite.

No. 1 is the largest and most conspicuously located of all the mounds, and is situated at the extreme eastern end of a ridge just where it drops down into a perpendicular, shaly cliff. It was covered with a thick sod, and apple trees were growing upon it. Mr. McEvers had long intended to examine it, although an uncle assured him that he had opened it 50 years ago and there was nothing in it. A slight break in the symmetry of the northeastern side near the top, marked the place of this excavation. Nevertheless, in the winter of 1905, Mr. McEvers began to tunnel it from the west.

As he proceeded, he found mussel shells, ashes, charcoal, and bones. The earth was soft and there was danger of its caving in; and when, at a distance of 33 ft. inward, a still softer soil was encountered, the tunnel was abandoned and a trench, intended to meet the tunnel, was begun from the eastern side. By the time this had been extended 50 ft. inward, Drs. Bushnell, Wulfin, and Fowke, of the Missouri Historical Society, had heard of it and were on the spot. With the consent of the owner, they hired 4 men with scrapers and started a large trench through the mound from east to west, several feet south of the former trench.

As the work progressed, ashes, charcoal, animal bones, and flint chippings were unearthed, beside a great number of mussel shells, some of them perforated so that by the attachment of handles they might be used as hoes or scrapers. Lower down were found a flint spear point, flakes of mica, three flakes resembling moss agate, but with no moss enclosed, and many small fragments of pottery, mostly of coarse material and crude "finger-nail" decorations, or none, but some with fine polish and beautifully curved rims neatly decorated with crisscross lines. At a depth of 22 ft. a layer of decayed wood and bark several inches in thickness was encountered; and beneath this was a vault 15 ft. from north to south, by 7 east and west, and 20 in. in height, built of logs and chinked with a green clay which, when moist, works up in the hand like putty.

This log pen had been built on the original surface or sod line, and had been floored with bark. Over the south half of this floor 1,259 leaf-shaped blades of chert had been laid so as to overlap like shingles. The blades are $3\frac{1}{2}$ to 7 in. long, and from 3 to $4\frac{1}{2}$ in. in breadth, carefully wrought, and mostly of dull white, although some are red, some black and red, and others a beautiful mixture of pink and white.

On this flooring of leaf-blades, at the southern end of the vault, a body nearly 6 ft. long had been laid, face down, head southwest. A foot north of the head a large lower jaw rested on four pink blades.

Human bones indicating promiscuous skeleton burials covered almost the entire bottom of the cist, and scattered about among them were 4 perfect, 19 broken, and several fragmentary needles or perforators made of elk bone. Just north of the center was a disjointed and bundled skeleton, the large leg bones being placed on the bottom and the skull, which was painted or stained red, being placed in vertical position above the west end of the heap. Near the northern end of the cist was an extended skeleton, head west; 2 ft. north was another extended skeleton with head at the east, and between the head of the latter and the feet of the former was a large shell a foot long, which had perhaps been used as a drinking cup, for the columella and inner whorls had been removed. Near the first bunched skeleton were 42 pearl beads, one weighing 52 grains, but the others small, though of brilliant luster. And with them were 72 cylindrical and barrel-shaped beads $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, made from salt-water shells, all well polished and drilled lengthwise. Among them was an occasional long, pointed tooth of an animal drilled through the root end. One or two other traces of bunched bones were found. Some flat, disk-shaped shell beads, perforated at the center, fragments of two "pulley rings" grooved around the outer circumference like the wheel of a well-sweep, and a finely wrought shell spoon, completed the contents of the vault.

The trench was enlarged at the middle so as to extend beyond the pen, and the logs were found to be crossed at the corners and to extend several feet beyond the cist. The reddish-brown, decayed wood crumbled at every touch. Several feet above and to the southwest of the vault, just where the enlargement of the trench begins, are traces of a log that seems to have sagged from an inclined position, like a weakened roof timber; and diagonally opposite on the northeast projection of the trench the red dust of decayed wood is also to be seen. If these are remains of roofing logs, the roof must have projected far beyond the vault, and have been put in the mound after a covering of earth had been heaped above the flat, wood or bark cover which rested immediately upon the pen.

The whole enormous mound seems to have been constructed of baskets full of sand, clay, ashes, and charcoal; and the separate loads can be distinctly traced. On the north wall of the trench, a thin vein of green clay like that with which the pen was chinked, indicates that a layer of this was put over the mound at one stage of the building. Small quantities of a soft, bright-red material resembling paint are found in the earth, and a crumbling ball of the same was picked up at the spring on the south side of the ridge. From the wall of the trench 5 ft. above the bottom, the writer took a very small pink leaf-blade. On the upper surface of it, close to the edge, was what appeared to be a short, branched root, but the supposed root proves to be as hard as iron, and though apparently extraneous, can be neither broken off nor washed away.

In mounds where there are important central burials, as in this, there are usually other inhumations around the circumference or in upper strata, and it is possible that much of interest still remains hidden in this tumulus; but to remove the entire mound would be a stupendous labor, and tunneling near the original surface is unsafe, for the moist loam readily falls—in *slices*—when cut with a knife.

No. 2, across the gully to the north was excavated with scrapers, the trench being cut from north to south. On the sod line at the center were found the decayed bones of 3 or 4 persons. No implements or pottery had been buried with them. Two other mounds in this row were left untouched, for the clay of which these are composed is very hard to work, being sticky when wet and exceedingly tough when dry.

Nos. 3 and 4.—Some distance west on this second ridge are 4 large mounds contiguous to each other and in a line north and south. Nos. 3 and 4, as well as No. 2, each had a slight depression near the top, and it is possible that the same uncle who thought he had explored No. 1 may have dug into these. They were of the same tough clay which at the surface almost resisted the blows of the picks. But despite the extreme difficulty of the task, a large trench was made through each. Nothing of consequence was found in No. 3.

In No. 4, the patella and tooth of a horse were uncovered; the latter at a depth of 7 ft., and evidently contemporaneous with the mound, proving that this earthwork is not more than 400 years old. At the bottom of the mound an interesting feature was discovered: the original surface had been leveled up by dumping earth in the depressions, and then a wall or ridge of red clay had been built, enclosing an area 12 ft. east and west by 16 north and south. Within this enclosure were 3 bunched skeleton burials.

No. 5.—The most southern one of the 4 was constructed of dumped earth, ashes, rock, and wood. A trench was run from east to west. Nine feet under the apex, the scrapers struck the northeast corner of a log cist 14 ft. east and west; 12, north and south; and $2\frac{1}{2}$ high, built directly on the sod line. Near the south side of this vault was the top of a skull, crown upward, and stained red. Four feet to the eastward were portions of the skeleton. One whole, and several broken bone needles were found in the cist. Outside the vault, 30 ft. west of the center and above the natural surface, was an extended skeleton, head south. Nothing else was found in the west half of the trench; but in the east half were two adult skeletons, extended, heads east; 5 fragmentary skeletons; one adult and one child's skull. It will be noticed that this mound, like the first in which a vault was enclosed, is of dumped earth, and that here within the narrow space of the seven-foot trench had occurred 10 depositions of human remains outside the cist. Probably 3 times that number would be found if the whole mound were explored; for the tumulus is 125 ft. in diameter.

No. 6.—Leaving the larger mounds and returning, with shovels, to the first ridge on which No. 1 stands, the explorers investigated a

very small mound, the middle one of 3 standing in a line east and west. This, like all the preceding, is in an orchard, and plowing had reduced it to a height of 3 ft. There was scarcely rise enough to indicate that it was an artificial elevation. Nothing was found at the center, but at the northeast were crumbling bones of two adults and of a child which, at death, was cutting its second teeth.

No. 7.—A new feature was discovered in the western one of these 3 small mounds. In all the others, the depositions had been on or above the surface. In this, a grave had been dug at the center, 16 in. into the soil, and in it had been placed a body, extended, head west. At the outer edge on the south, another grave had been sunk a foot



TRENCH THROUGH NO. 1—McEVERS MOUNDS

into the earth, to contain a body extended, head east. This grave was covered with limestone slabs and on the slabs were several mussel shells. West of this grave, on the natural surface, was a skeleton, extended, head northeast or toward the center. A foot above this were the bones of a skeleton piled in a small heap. At the sod line, just above the central grave, was an extended skeleton, head east.

When the tumulus was 2 feet high, two bodies were placed on it east of the center, heads west, as would be necessary in keeping the head uppermost on this side of the mound. One of these skulls had teeth much worn, indicating age; the other had only the first set of teeth. The heads were in contact, and this was probably a burial of

parent and child. Three other bodies were placed on the east. On the west side of the mound was an extended skeleton, head southwest, with the small bones of the feet and hands well preserved, but with the face and jaw bones crumbled to dust. Parallel with this were the soft fragments of another skeleton. Farther east was a broken skull; and under this the nearly perfect skeleton of an infant or a very young child. Part of the skull of another infant, which had been just cutting its teeth, lay near this. East of the center, close to the surface, was an unusually thick skull, and north of the center a very large femur and tibia lying at right angles and a foot apart. Beneath these were the fragments of a child's skull and 3 ft. away some teeth of a child. The slight elevation of this mound, the successive burials, and the position of scattered bones evidently belonging together, as in the two instances last mentioned, render it probable that the sundering of these skeletons was due to the plowshare or to the depredations of animals.

In this one mound, 5 ft. high and scarcely 25 in diameter, the remains of 18 or 19 persons had been inhumed, in pits, on the surface, inclined on the partly constructed pile; heads east, west, northeast, and southwest, showing that no uniform custom prevailed. No implements or pottery had been buried with these bodies. Only the southern portion of the mound, from a line drawn 3 ft. north of the center, had been excavated. An exploring trench was dug around the northern circumference, but as no implements were unearthed and as bones were now at a discount, being corded up under a tree near by, the inner northern part of the mound was left intact and the explorers betook themselves to a pasture lot close to the southwest corner of Montezuma, and began work on No. 8.

No. 8.—This was another mound whose boundaries had been obliterated and whose height had been so reduced by cultivation and by the trampling hoofs of cattle that Mr. McEvers had not recognized it as an Indian burial place. The first stroke of the spade revealed an earthen pot fairly projecting above the sod. And on the southern slope the faces of 6 skeletons almost protruded from the earth. The pot was the only entire one found in any of the mounds, but it was so badly decayed that it fell to pieces on removal from the ground. Directly below the pot was a round fire pit 16 in. in diameter, and 18 in. deep, filled with ashes, charcoal, and earth. North of the pot, close to the surface was the top of a skull. Three feet east of the center was another; the face bones wanting. On the natural surface, lying in a curved line as if to mark the southern circumference of the mound, were two adult skeletons, and near them that of a child, covered with limestone slabs. Here also an exploring ditch was run around the northern circumference, and the remainder of the mound left undisturbed.

Many of the skeletons were too much decayed to be preserved; but all the skulls were collected, and these, together with most of the blades, beads, and needles were given to the Missouri Historical Soci-

ety.¹ There are still 4 large and 3 small mounds unexplored, and on the east bank of the Illinois are several more.

Log cists like those in Nos. 1 and 5 are not common in Illinois, though they are found in other sections of the United States. In Joe Daviess Co. a vault was made of stone on three sides and of logs on the fourth side; in Whiteside Co. east of Sterling the writer knows of a mound in which a large stone slab was laid on four stone corner-posts, and under this canopy several bodies were placed in sitting posture; but the usual cist all along the Illinois side of the Mississippi River is of stone slabs set on edge, with a floor and covering of slabs.

The Hurons east of the Great Lakes, used to bury their dead separately, and every 12 years they exhumed the bones and the partially decomposed bodies, made a "Feast of the Dead;" and reburied them all in one pit. The Dakotas exposed their dead on aerial platforms until the flesh was removed, when they buried the bones. Some such custom probably accounts for the bundled and disconnected remains found in the McEvers mounds.

CLARA KERN BAYLISS.

Springfield, Ill.



BOOK REVIEWS

THE NORTHMEN, COLUMBUS AND CABOT²

The American Historical Association in 1902 adopted a plan to present a series of volumes of original narratives of early American history to cover the period from the earliest discoveries to 1700. The general editor chosen was Dr. J. Franklin Jameson of the Department of Historical Research in the Carnegie Institution of Washington. The object of the series is thus set forth in the general preface to the first volume to appear:

The series is to consist of such volumes as will illustrate the early history of all the chief parts of the country, with an additional volume of general index. The plan contemplates, not a body of extracts, but in general the publication or republication of whole works or distinct parts of works. In the case of narratives originally issued in some other language than English, the best available translations will be used, or fresh versions made. In a few instances, important narratives hitherto unprinted will be inserted. The English texts will be taken from the earliest editions, or those having the highest historical value, and will be reproduced with literal exactness. The maps will be such as will give real help toward understanding the events narrated in the volume. The special editors

¹To which the writer is indebted for many of these specifications.

²*Original Narratives of Early American History.—The Northmen Columbus and Cabot, 985-1503.*—The Voyage of the Northmen, Edited by Julius E. Olson.—The Voyage of Columbus and of John Cabot.—Edited by Edward Gaylord Bourne, Ph.D.—With maps and a facsimile reproduction.—Charles Scribner's Sons, New York—1906.

of the individual works will supply introductions, setting forth briefly the author's career and opportunities, when known, the status of the work in the literature of American history, and its value as a source, and indicating previous editions; and they will furnish such annotations, scholarly but simple, as will enable the intelligent reader to understand and to estimate rightly the statements of the text. The effort has been made to secure for each text the most competent editor.

The great value of such a series is apparent to all, for no abstracts of narratives or modern histories can have the atmosphere or personal character of the originals.

Of the early discoverers whose narratives and journals are gathered together in the first volume under the title of *The Northmen, Columbus and Cabot*, the Northmen are the most interesting and attractive because of the mystery which surrounds the actual places they visited, the character of the men and the fact that the original narratives of their expeditions have not been as widely published as those of the later voyagers. These narratives include the *Saga of Eric the Red*, *The Vinland History of the Flat Island Book*, and excerpts from Adam of Bremen's *Descriptio Insularum Aquilonis*, *The Icelandic Annals* and Papal Letters concerning the Bishopric of Gardar in Greenland during the XV century. The romances in these stories surpass those of any novel in interest, and what could be more fascinating than the fairy tales, such as that of the discovery of a Uniped, which were inserted by one narrator, who felt that he must have something supernatural to report in order to prove that he had visited a new, strange, foreign country.

A comparison of the different narratives makes it possible for the reader to separate in part the true from the imaginative, and to draw his own conclusions as to the location of the Vinland described by the Northmen, a problem which will doubtless never be solved unless some authentic traces of their short visit to our coast lies hidden awaiting future discovery.

The introduction and numerous footnotes by Prof. Julius E. Olson add greatly to this most valuable collection of narratives.

We can speak but briefly of the voyage of Columbus and John Cabot, which are edited by Dr. Edward G. Bourne. This part of the volume is composed of a complete Journal of the First Voyage, letters from Columbus to Luis de Santangel, and to Ferdinand and Isabella, a letter of Dr. Chansa, on the second voyage of Columbus, a narrative of the third voyage of Columbus, a letter of Columbus to the Nurse of Prince John, and a letter of Columbus on the fourth voyage, and a few letters of the voyage of John Cabot. We are fortunate in having such full accounts of the discoveries made by Columbus, and equally unfortunate in having so little concerning the region visited by John Cabot.

Several maps and facsimile reproductions add to the value of the work, which is a boon to the general reading public, as well as to students and teachers of history.

FREDERICK BENNETT WRIGHT.

THE BOOK AM-TUAT*

The inhabitants of Egypt during the Dynastic Period of their history possessed, in common with other peoples of similar antiquity, very definite ideas about the abode of departed spirits, and few, if any ancient nations have caused their beliefs about the situation, the form, the divisions and the inhabitants of their Heaven and Hell to be described so fully in writing.

Doctor E. A. Wallis Budge, Keeper of the Egyptian and Assyrian Antiquities in the British Museum, contributes a series of three volumes which treat of the Egyptian Heaven and Hell. The first of these contains the complete hieroglyphic text of the *Book Am-Tuat*, with translations and reproductions of all the illustrations; also chapters dealing with the origin and contents of Books of the Other World. The second volume contains the complete hieroglyphic text of the Summary, or short form of the *Book Am-Tuat*, and the complete hieroglyphic text of the *Book of Gates*, in like manner as to translations and reproductions of the illustrations; while the third volume is a resume and discussion of the contents of the others. Chapters are devoted to "The earliest Egyptian conception of the Other World," and to "The reunion of the Beatified and their recognition of each other in the Other World, and the gathering together of a man's ancestors to him in the Neter-Kher."

For a period of 2,000 years in the history of Egypt, the Books of the Other World consisted of text only, but about B. C. 2500 some pictorial representations appeared, and before the close of the XIX Dynasty, all the principal books relating to the *Tuat* were profusely illustrated. In the copies of them which were painted on the walls of the royal tomb, each division of the *Tuat* was clearly drawn and described, and each gate, with all its guardians, were carefully depicted. Both the living and the dead could learn from them, not only the names, but also the forms of every god, spirit, soul, shade, demon and monster with which he was likely to meet on the way.

The Egyptians had no belief in purgatory. In all the Books of the Other World we find pits of fire, abysses of darkness, murderous knives, streams of boiling water, foul stenches, fiery serpents, hideous animal-headed monsters and creatures, and cruel, death-dealing beings of various shapes, similar to those with which we are familiar in early Christian and mediæval literature, and it is tolerably certain that modern nations are indebted to Egypt for many of their conceptions of hell.

The oldest copies of the *Book Am-Tuat* are found in the tombs of Thothemes III, Amen-hetep II and Amen-hetep III, at Thebes. The most complete and best illustrated copy is that which is found on the walls of the tomb of Seti I at Thebes.

THOMAS FORSYTHE NELSON.

**The Egyptian Heaven and Hell*, by E. A. Wallis Budge, 3 vols, Chicago: The Open Court Publishing Co.



WARRIORS ON LINTEL 2, PIEDRAS NEGRAS, MEXICO

EDITORIAL NOTES

COMMERCIALISM VS. SCIENCE: A spirit of commercialism pervades the atmosphere surrounding some of the recently reported discoveries in the Mississippi Valley, which, although the discoveries may be genuine, can not fail to recall the Cardiff Giant and other commercial archæological successes.

AGE OF THE IVORY AND WOODEN TABLETS DISCOVERED AT NEGADAH AND ABYDOS.—In speaking before the Society of Biblical Archæology, Mr. F. Legge claimed that the small ivory and wooden tablets recently discovered at Negadah and Abydos were the earliest written records in existence. He believes they record different ceremonies in the funerary chapels in which they were found.

ARCHAEOLOGICAL REPORT OF ETHNOGRAPHICAL MUSEUM AT TORONTO.—Mr. David Boyle's Archæological report to the Minister of Education of Ontario for 1905 records the addition of 132 objects to the Ethnographical Museum at Toronto, which now has 27,155 specimens. These additions include "several fine flint implements; some highly-decorated and well-formed clay pipes; stone pipes; a well-shaped clay pot; a large curved copper tool; a bone implement in which a hole has been drilled, called by some an arrow straightener; a naturally weathered stone, 9 in. by 4½ in., which has for many years been looked upon as an Indian tool; and two buffalo-hide pictographs." To his report is appended a collection of papers on native tribes of Canada, drawn up for the International Congress of Americanists held at Quebec in September.

HOW THE AZTECS FOUGHT.—An interesting article under this title by Manual Gamie of the Mexican National Museum appeared in the November issue of *Modern Mexico*. The warlike spirit of the Aztecs was one great cause of their prominence in Mexico, and this spirit in turn was fostered by the worship of the war-god Huitxilo-pochtli. A boy's military education might be said to begin at the age

of 4 days, when a bow, arrows, and buckler of appropriate size were placed in his hands, as symbols of his future career as a soldier. At 18 years he was sent to school, the "calmecac" if of the upper class, the "telpuchcali" if not. His head was shaved except a single lock of hair in the back. This lock was cut only when he captured his first prisoner in war. The training included service in the temple and tilling the fields of the school as well as the use of arms. The pupil of the "calmecac" after capturing 4 or 5 prisoners, became a Knight of the Eagle or a Knight of the Tiger. A Knight of the Eagle wore a helmet representing the head of an eagle whose open jaws framed the face of the warrior. A Knight of the Tiger wore the skin and head of a tiger.

The principal motive for war was to supply victims for Huitxilo-pochtli. On one occasion a "sacred war" is recorded between perfectly friendly tribes because there had been peace so long that there were no victims for the god.

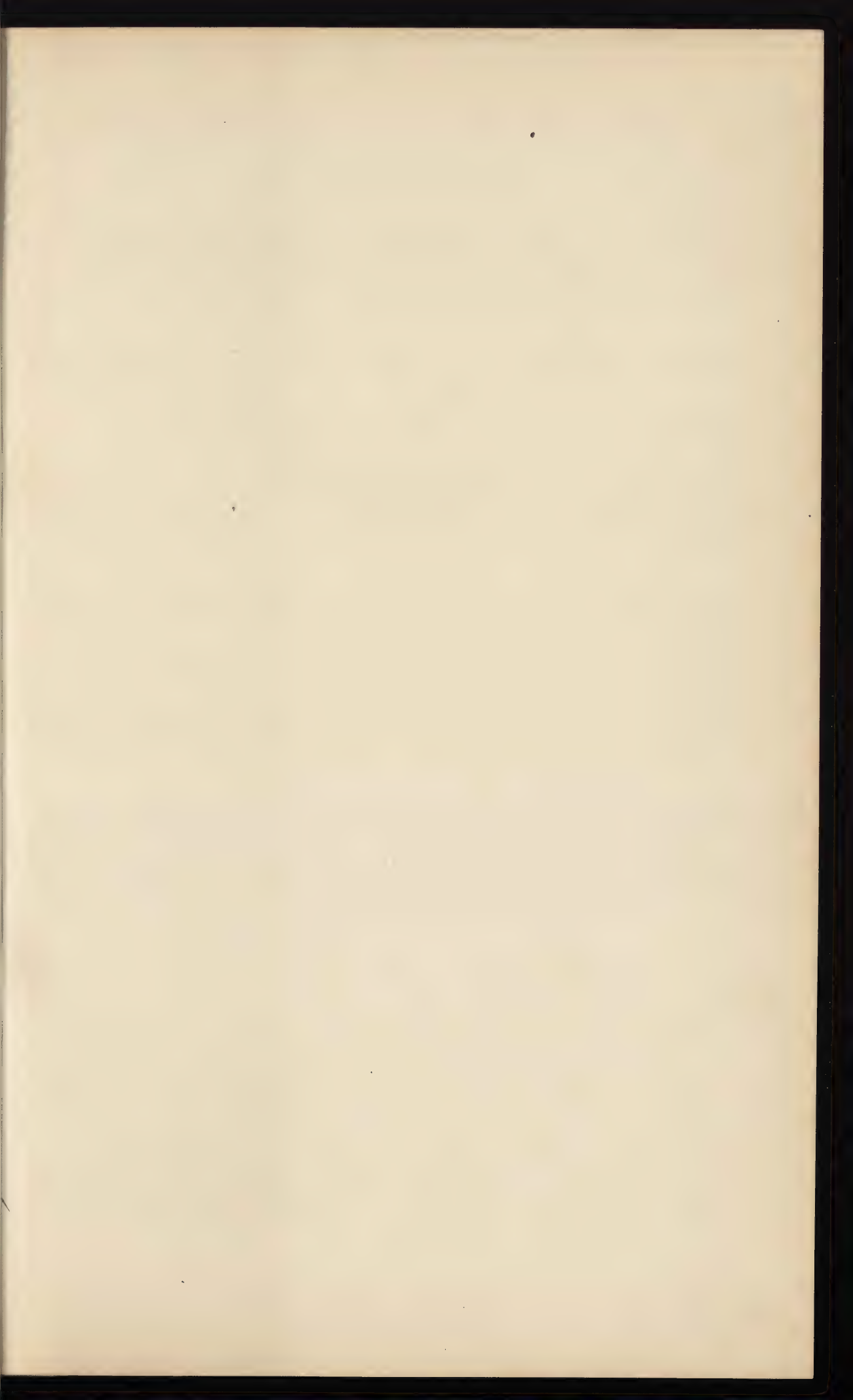
When war was declared, messengers were sent to demand tribute from the tribe selected to furnish prisoners. If tribute was denied, the messengers retired to return a few days later. If the king still refused to comply with their demands, they stained his face with resin and placed on his shoulder a symbolic adornment of feathers. Later still 3 ambassadors visited the court for the last time. On their final return to Mexico, the call to arms was made. The weapons used included bows and arrows, slings, darts, "atlatl" (a species of cross-bow), heavy macanas, wooden clubs with two rows of flint teeth and maces. Each of 20 chiefs carried also a lance with copper points, a breastplate, the standard of his division, and a tail plume of feathers. The soldiers stained their bodies to match the plumes of their respective chiefs, and their faces red to frighten the enemy. The rear guard was the "quachic," each one of which was said to be able to kill 100. They used no weapons, but trusted to their powerful fists and titanic embraces.

AZTEC LEGENDS.—The Aztecs employed a system of hieroglyphs, painted always in bright colors on strips of cotton cloth, prepared skins or on maguey paper. These were rolled or folded fanlike into books called "amatl," often with thin wooden covers. The Tecamoxtli might be called their Bible. The scraps of it left after the Spanish conquest give the story of the creation. Among the interesting legends is that of the birth of the sun and moon. Man had already been created, and was living with light from Venus only. The inhabitants of the earth were dumb and prayed silently for the sun. The gods met at Teotihuacan, where to-day are monumental pyramids of pre-Toltic origin, to consider the petition. The goddess of water begged the god of air to create light. He acquiesced and disappeared. The temple top blazed with fire. The god of air, Quetzalcoath, decreed that any priest who should leap into the flames would become the sun.

Two offered, one of royal lineage and one of humble. The royal priest delayed too long—the other was before him. As soon as the ashes of the priest were buried, the first dawn appeared. The Aztecs worshiped and all rejoiced—all but one. The royal priest was envious. At last he summoned courage to cast himself into the fire. As this new luminary appeared in the sky, Quetzalcoath, understanding the priest's motive, sent a rabbit to trample out its light. Slowly its light paled, and it became fixed in a distant part of the heavens, shedding no heat and only reflected light.

"The 4 immense monoliths that adorned the 4 angles of the upper platform of the great teocalli, 150 ft. in air, and which served as gnomonic dial hands, signified for the people the 4 places of the dead, and the priesthood held them as the pathway of Tonatiuh, the Sun, and his bride, Ocxomoco, the earth. * * * Though the Aztecs had no telescopes or instruments for observation, they fixed the relative position of the sun and stars. They recognized the constellations. For instance, the Little Bear they pictured in the shape of the letter S. The Great Bear, which was known as the tiger, Texcatlipoca, was distinguished from the Scorpion. * * * The movements of Venus were well understood. They styled her Citlapul (morning star) or Hueitlalin (evening star) according to her moods and movements." [Condensed from Edward C. Butler in *Modern Mexico*.]

PREHISTORIC BURYING-GROUND, HARLYN BAY, CORNWALL, ENGLAND.—In 1900, during excavations for a dwelling house, the workmen came upon a slate cist about 15 ft. below the surface. The owner immediately communicated with scientific men, who subsequently examined the site, which proved to be a very ancient burying ground. The Royal Society of Cornwall took up the matter, and as many as 100 graves were opened, constituting the richest find in number of stone cists, skeletons, and their accompaniments that has ever been made in one place in the British Isles. Last spring many more implements were found, and within a few weeks another cist has been discovered. Most of the relics found under the direction of the Royal Society of Cornwall were removed to the Truro Museum, but others uncovered since are preserved in a museum on the ground. Some of the slate graves have been covered with glass cases, so that visitors may see the graves and the contents just as they were found. In the museum are 20 cases of relics such as spindles, whorls, rings, bracelets, beads, brooches, and implements of various materials. No coins were found, a fact which helps anthropologists in estimating the age. They consider that the site belongs to the neolithic or bronze age, and that the skeletons are as much as 2500 years old. The skeletons are in the sitting posture, with the knees almost up to the head and the hands crossed. The graves extend in straight lines north and south, one head to another. The rows of cists are about 3 ft. apart, and sometimes rows are on top of one another. Often more than one body was interred in a grave. [Condensed from *Scientific American*.]





SKULL OF NEBRASKA LOESS MAN

Side view showing thick, protruding brows, retreating frontal without eminences, parietal, inter-parietal, occipital and a portion of the temporal bone. Maxillae of skull at hand but not yet set in place. Specimen No. 6-1-11-06, The Robert F. Gilder collection, in the University of Nebraska Museum. Negative No. 19, 5-1-11-06, Hon. Charles H. Morrill's collection of Geological photographs.

X

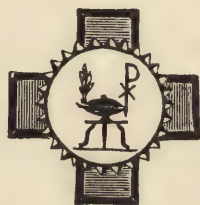


THE VALLEY OF THE MISSOURI RIVER, SHOWING LONG'S HILL

In the background, it rises 150 feet. Gilder's mound is on the crest of the hill under x. Negative No. 3-30-11-06, Hon. Charles H. Morrill's collection of Geologic photographs, the University of Nebraska.

RECORDS ^{OF} THE PAST

VOL. VI



PART II

FEBRUARY, 1907



THE NEBRASKA LOESS MAN

ACTUATED by a desire to determine, if possible, who were the inhabitants of the Missouri Valley, especially in Douglas County, Nebraska, and Pottawattamie County, Iowa, who have left many traces on both sides of the river, I began a series of investigations which have been carried on intermittently for 3 years past. Data on the subject there was almost none. This fact led to inquiry and resulted in my learning that practically nothing had been done here either by the American Bureau of Ethnology, the states interested, or by museums. A few private individuals, actuated by the same motives which have influenced me in my investigations have done something, but unfortunately have left little in the way of documents upon which could be based even a start in this line.

The entire valley is even to-day a storehouse filled with abundant evidence that it has in the past been the home of a vast population, probably outnumbering its present population by many thousands of souls. Prince Maximillian mentions that he had found the remains of Mandan lodges from a point well up in North Dakota to the river's mouth, and implements similar to known Mandan blades, drills, axes, projectile points and scrapers I have found about these very remains of which Maximillian speaks. Besides these stone implements the whole tract is positively covered with potsherds, showing considerable skill in manufacture. I have in my collection 42 different pot rim



LONG'S HILL

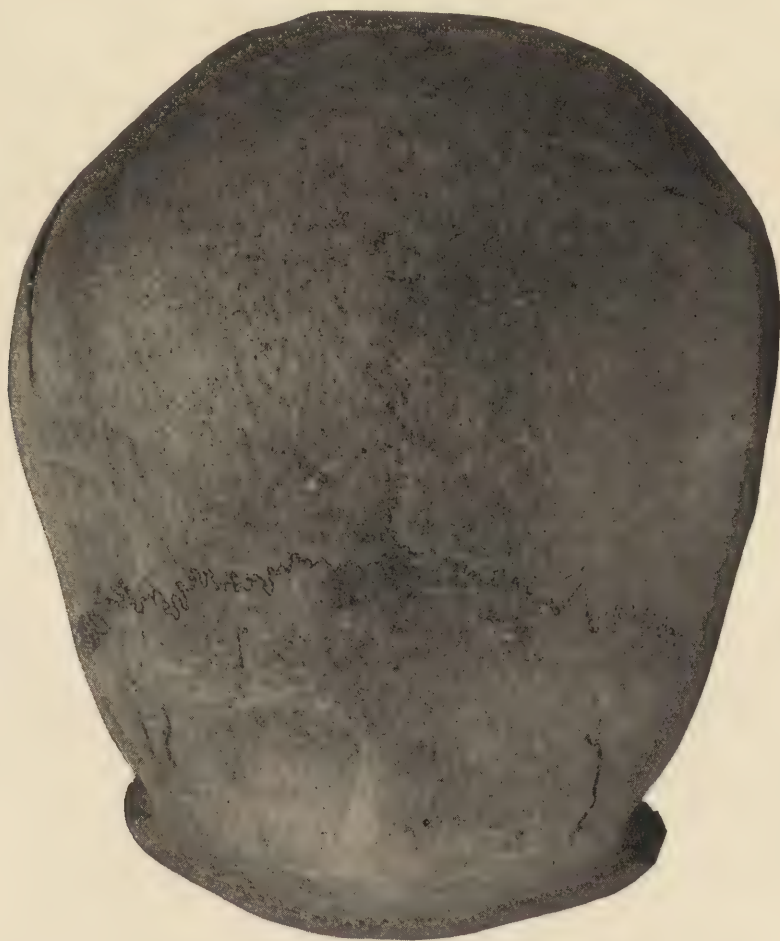
At Long's hill there is a continuous section along the roadside from base to summit. Incident to the wear of travel and guttering by rain, the road runs in a canyon with walls five to ten feet high.

designs, many of which are as perfect and symmetrical as if cut by a modern artisan. A vast amount of reading of the history of the tribes of Indians, which have at various times lived in this vicinity or roamed this section of Iowa and Nebraska, has failed in determining that they manufactured pottery of any description. Whatever literature upon the subject, beginning with Lewis and Clark and ending with Father DeSmet, to which I have had access, disproves any suggestion that they ever made either flint implements or pots in which they cooked their food. All the evidence I have in my possession secured in field work goes to prove that the people who lived in the large lodges, the remains of which are scattered by the hundreds throughout this section, were of an intelligence far ahead of the Indians of this part of the west in historic times.

It was after investigating many score of burial mounds north of Council Bluffs, Iowa, where each one of the thousands of conical, weathered, loess knolls and bluffs contains a grave of an unknown people, that I turned my attention to Nebraska. I at first searched out and mapped some 40 odd lodge circles ranging from 50 to 90 ft. in diameter, and from 3 to 5 ft. deep in the center. I have determined to my complete satisfaction that the plan of these lodges conforms exactly to that left by Prince Maximilian, even to the cache opposite the entrance and beyond the fireplace in the center. Turning to the

mounds I at first opened the graves of Indians whose effects, placed with the remains, indicated contact with the whites. I learned to differentiate between them and the older burial places and whenever possible re-covered the remains as I had found them.

In the summer of 1906 I began operations in a mound situated 3 miles north of the little village of Florence, Nebraska, and in following down an old excavation in a sort of preliminary effort, I ran across what is now known as the skull of the "Nebraska Loess Man No. 5."



SKULL NO. 6, NEBRASKA LOESS MAN

Top view showing thick prominent brows, frontal bone without eminences, right and left parietal, and inter-parietal at the very back. The sutures are deeply dentate. Specimen No. 6-I-II-06, The Robert F. Gilder collection, the State University Museum. Negative No. 9-I-II-06, Hon. Charles H. Morrill's collection of Geological photographs.

I was considerably startled when I had brought the skull from the ground and at once saw that it was a cranium of remarkable characteristics. It lay in what I took to be a baked clay matrix. Before I reached the skull I had worked through earth similar to other cover-

ings of remains in the neighborhood and through several inches of what appeared to be earth and ashes, beneath which was the stratum which looked as if it had been burned. I had not at that time learned that an intrusive burial had taken place, and naturally concluded that the earth had been baked over the skull in order to prevent the leaching of the bones by rains. Near the skull was a jumble of leg, arm, pelvic, and other bones, many of which went to powder on being removed.

In following down the line of what I believed was the bones of the lower extremities, I ran onto the skulls of the intrusive burial. There were two of the latter and I was able to secure the larger bones of 3 skeletons in an excellent condition. My first operations, covering 4 days, resulted in securing parts of 5 crania, including broken jaw bones and teeth. At one point of the two trenches which I ran through the mound, I found a lower jaw with the teeth almost intact, but not another bone of any sort within 3 ft.

Skulls Nos. 1 and 2 were filled with earth and small pieces of charcoal. Immediately above the bones of what I shall call the "upper layer" I found more than a score of Sioux quartzite spalls, evidently fractured from drift. Two very fair flint blades and a three-cornered knife were also found on this level. These implements are similar to many I have found in and about the lodge circles of the vicinity. With the bones of the lower level were flat pieces of diorite, which might or might not be crude implements. They do not show any attempt at grinding, smoothing, or flaking.

On November 8 and 16 I was accompanied in my investigation by Prof. Erwin H. Barbour, of the University of Nebraska, who at once assumed charge of the expedition whose research has resulted in establishing the status of the find and who will describe the results in a manner infinitely more interesting and practical than lies within my power.

On November 30 I was able to secure the only missing link in the history of Long's hill mound and to add still another cranium to the collection of the State museum. This link was furnished by Mr. Charles S. Huntington, a well-known business man of Omaha, and is as follows:

In the month of June, 1894, Mr. Charles S. Huntington, William Morris, and Frederick Parker, the latter a man of great wealth, inspired by a paper which appeared in the *American Antiquarian*, on *Antiquities of the Missouri Bluffs*, read before the Academy of Sciences, Des Moines, Iowa, in December, 1880, by Mr. S. D. Proudfit, of Glenwood, Iowa, began an investigation into the burial mounds of the northern part of Douglas County, Nebraska. They secured several finely made stone axes and a few crania. They excavated a deep hole some 5 ft. square in the summit of Long's hill and secured a skull. This cranium fell to the lot of Mr. Huntington, and he carried it to his home in Omaha and stowed it away in a garret. The skull was badly shattered and he, believing that it was simply that of a flat-headed



JAW OF SKULL NO. 6

Molar number 3 worn to gum, numbers 2 and 1 in a diminishing ratio. Negative No. 1-11-06.

Indian, gave it little consideration. The skull lay undisturbed nearly 12 years. When my find was first featured Mr. Huntington was out of the city. He returned Christmas Day after 3 months' absence, and coming across a copy of the *Omaha World-Herald* of October 21, in which the first account of the find appeared, he at once recognized from the description that the skull he had unearthed 12 years before bore many similarities to those taken from Long's hill. He at once notified me and I immediately recognized the type as that of the lower layer. Mr. Huntington presented me with the skull and it will be placed with the others of the collection in the Nebraska State Museum at Lincoln. Mr. Huntington stated that the skull had been taken from a 5 ft. level in compact, unmoved earth, which he declared surprised the entire party not a little. He says there were no other bones in the vicinity of the skull. Messrs. Parker and Morris are now both dead.

I am under great obligations to Mr. Manuel Long, the owner of the property where the excavations were made, who has given me an exclusive right to excavate on his land, and also to Mr. John Bankey, a farmer of the neighborhood, who assisted in excavating work at the hill and in adding material parts of the bones which had been otherwise lost in the earth exhumed at the time of my earlier excavations.

ROBERT F. GILDER.

Omaha, Nebraska.



SECTION OF LONG'S HILL

A geologic section near Long's hill, on which Gilder's mound is situated. The road to the left is on Carboniferous shale, upon which rests glacial drift as thick as 40 feet, just back of the telegraph pole. Above the drift rises loess showing characteristic vertical wall and columnar structure. Negative No. 2-30-11-06, Hon. Charles H. Morrill's collection of Geologic photographs, the University of Nebraska.

ANCIENT INHABITANTS OF NEBRASKA

THE exaggerated and misleading reports in the current numbers of the press respecting the Nebraska Man are greatly to be deplored by those who are moved by a scientific spirit. It becomes, therefore, the more desirable that the facts respecting an ancient type of man recently discovered in Nebraska be presented in as authentic a manner as possible, with a view to the correction of error. The history of the discovery and facts pertaining thereto are described in this magazine by the discoverer himself, and the writer will devote his attention more particularly to the geological facts as known at present. The importance of this discovery hinges, as we believe, on its exact stratigraphic position. That is, the writer views these human remains as fossil man.

Occurring in the loess, as they do, seems to establish evidence of glacial man in America, and it is for the stratigrapher or glacialist to determine with nicety to which glacial or interglacial epoch they shall be referred. The glacial drift on which the loess rests is Kansan,

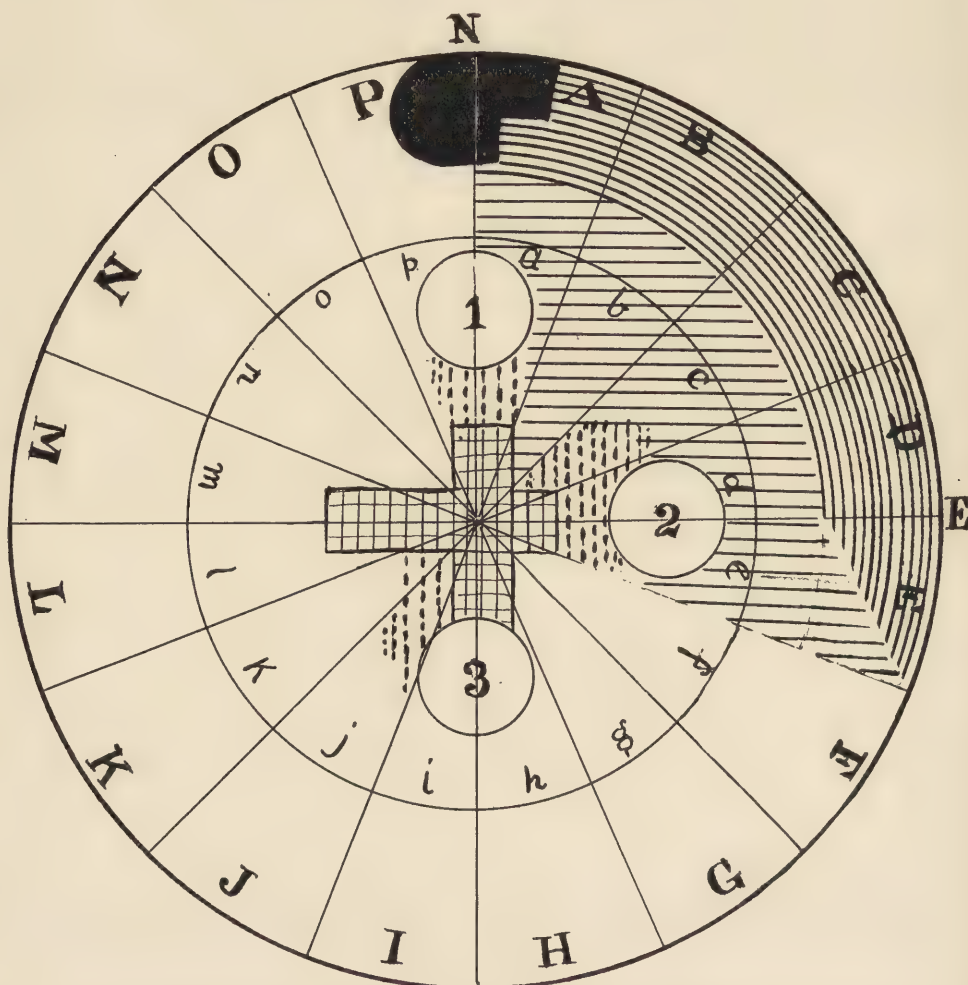
while the loess may be Iowan or more likely Wisconsin. However young this loess may be, it is nevertheless old, and carries man well back to glacial times, toward which all the lines of evidence have so steadily been converging.

Long's hill, on which Gilder's mound is located, is a hill, or the hilly terminus of a ridge, cut out of the main loess body by streams tributary to the Missouri River. The apex of the hill is 200 ft. above water level, and 150 ft. above the Missouri River valley, out of which it rises. From the bottom of the hill to the top there is a continuous section along the roadside.

From this hill to Florence, a distance of 3 miles, there is a section nearly 3 miles long. The level road along the bluff leading to Long's hill is exactly on the top of the Carboniferous, upon which there rests 10 to 20, and in places even 40 ft. of drift, readily distinguishable as such. Above the drift comes 150 to 200 ft. of loess, according to the spot where the section is taken. The section at Long's hill reads Carboniferous, overlaid by 10 to 20 ft. of glacial drift, overlaid by 150 ft. of loess.

Only a few years ago the Missouri River was trenching and undercutting the banks, and land slides are in evidence everywhere. They must be reckoned with in all stratigraphic work done in this region. It should be interposed that the simple geology at Long's hill does not seem to have been complicated by land slides. Early in October Mr. Robert F. Gilder discovered a number of human bones which he presented at once to the University of Nebraska Museum. The writer immediately began critical cooperative investigation, and the work of exploration continued to December 1.

Facts were obtained which lead to the conclusion that 3 races of men are represented in this spot, the oldest being of the loess and synchronous with that stage of glaciation. The next above them are distinct mound builders, among whose bones occurred the skull of a modern Indian buried intrusively, and differing from the others in color, texture, and thinness of skull wall. This skull is quite complete and may be pronounced relatively advanced, having small brows and a good forehead. The two mound builder skulls had prominent brows and retreating foreheads, with distinct but small frontal eminences, while the skulls of the Loess Man had thick, protruding superciliary ridges or brows, very low retreating foreheads, without frontal eminences. The last named was found in undisturbed loess, and all the evidence shows they were not buried but were deposited. The first named were buried in a two and a half foot layer of loess plainly disturbed by digging and burying, it being a mixture of black surface soil and light buff loess. The bones of the Nebraska Loess Man, as we have named him, doubtless antedate the hill, while those of the mound builder seem to be subsequent to it. It is assumed that archaic burial in loess could not have taken place in such a manner as to escape detection. It is further assumed as improbable that primitive people not provided with



A DIAGRAM OF THE EXCAVATIONS AT GILDERS MOUND

The cross lines show the cross trenches dug by Mr. Gilder, the dotted lines the extension by Mr. Gilder and the writer, November 8, 1906. The circles 1, 2, 3, are shafts sunk 8 feet deep by Dr. George E. Condra and the writer, November 16, 1906, the horizontal lines indicate an area excavated to a depth of 6 feet, the concentric lines in sectors A, B, C, D, an area lowered to about 9 feet. The black represents a shaft sunk to 12 feet, bone fragments occurring all the way to 11½ feet. The outer circle has a diameter of 30 feet, the inner one, which is the mound, has a diameter of 18 feet. The bulk of the material found to date lay between 1, 2, 3, and A and P.

implements would dig graves and bury their dead 12 ft. deep. And it is still further assumed that they would not bury them as water-worn fragments, and as widely-scattered and unrelated bits.

Associated with these loess bones are such loess fossil as *Anadonta*, *Polygyra*, *Succinea*, and the bones of some mammal, presumably a young wolf with epiphyses wanting.

The lithologic structure of the loess is not disturbed, the characteristic vertical lime tubes and concretions being present. There are occasional angular pebbles and bits of flint, and possibly flint imple-

ments, which, if such, are too crude for distinct recognition. They resemble frost spalls. Some of these spalls or chips are plainly from the *Fusulina* flints of the Carboniferous so may be of local origin. Spalls, loess fossils, bits of human bone, are so widely scattered that but 5 or 6 bits can be found to the cubic yard of loess. Paleontologically the strongest evidence of the antiquity of these remains must come from the skull, the other skeletal parts being subject to wide variation.

No evidence of stratification has appeared in this loess bone bed, nor have any extinct remains been found associated with the human



MANDIBLE FROM GILDERS MOUND

Mandible of a youthful person found 4 feet deep in loess broken in 3 pieces and all teeth gone save 3 molars. From specimen in the Robert F. Gilder collection, State University Museum.

bones. Counting all skull fragments there are probably 10 or 12 individual skulls from this layer and comparison shows them to be of the Neanderthal type, with thick cranial walls.

METHODS OF INVESTIGATION

As soon as it was discovered that there was apparently a bone bed in the loess the strictest care was exercised in all succeeding work. The original cross trenches dug by Mr. Gilder were deepened and widened, scattered bone fragments were found on all levels to 6 ft. Twenty or thirty fragments were found on this occasion, including bits of ribs, portions of limb bones, a clavicle, metatarsal No. 1, scapula, and fragments of skull, although the number would have been greater had their relation to the loess been discovered earlier.

At a depth of 5 ft. was dug out of the loess a scapula in form and proportion unlike the average human shoulder blade. The acromion is not deflected, but is in line with the spine, which is broad and strong and continuous, without constriction to the internal scapular border.

A very interesting bit was the left half of a frontal bone exhumed in loess at a depth of nearly 5 ft. Later the other half was dug up some 4 ft. farther east in the trench. These two halves make an interesting frontal of what once was a low-browed skull, as shown in the accompanying figure. A week later work was resumed, the writer being again accompanied by Mr. Gilder and Dr. George E. Condra. The precaution was taken to remove all surface material so that nothing could fall into the trenches, and 3 wide shafts were sunk to the depth



BONES FROM GILDERS MOUND

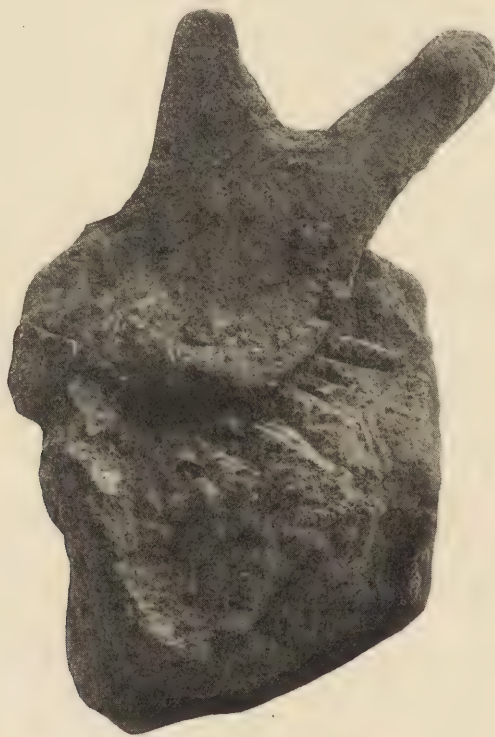
A fragment of skull and bone, each pitted and etched, found 4 to 5 feet deep in undisturbed loess. Characteristic bits. The skull to which this fragment belongs was scattered over a space 5 by 5 feet, and was taken out and preserved in blocks.

of 8 ft. on the northern, eastern, and southern points at a distance of 7 to 8 ft. from the center, or close upon the outer limit of the mound, which is about 18 ft. in diameter. Each shovelful of earth was taken in hand as dug out and was carefully scrutinized, all bone fragments carefully saved and properly recorded. As far as possible each fragment was preserved in a block of loess. In all about 20 bits were found as follows: a weathered occipital bone showing occipital protuberance and crest, inferior and superior cerebellar fossæ, fragments each of limb bones, scapula, sacrum, clavicle, calcaneum, 3 vertebræ, 2 metatarsals, and a jaw. The metatarsals are straight in every case

and not arched after the manner of modern man. The jaw found at the depth of 4 ft. is that of a youth with cusps of the teeth scarcely worn. Old age can not be assigned as the reason for the absence of all teeth save 3 molars, as shown in the figure.

In accounting for this one is led to remember the frequent occurrence of toothless jaws in Bad Land clays and Loup Fork sands. Just as the teeth in water-soaked jaws are loosened and tend to drop out, so it seems to have been with this human mandible. No other bones or teeth were found near this jaw.

Some of the above bits were but slivers, others bits 2 to 3 inches long, being more or less worn, etched, and gnawed.



HUMAN JAW

Portion of a human jaw in a block of loess, the front half weathered off. Found in undisturbed loess at a depth of 5 feet, in sector D, near circumference.

Along with them occurred bits of the shell *Anadonta*, *Succinea avara*, angular pebbles and loess concretions. A few days later when work was again resumed, the writer was accompanied and aided by Dr. Condra, also by Edwin Davis and Paul Butler, members of the Morrill Geological expedition of 1906, and by Mr. Gilder, as time would permit. Systematic work continued for 3 days. A circle 30 ft. in diameter was laid off concentrically about the mound and divided into quadrants and these divided into sectors of $22\frac{1}{2}$ degrees to facilitate recording.

The northeastern quadrant was excavated to an average depth of 6 ft., and a 3 foot strip on its periphery to a depth of 8 to 9 ft., and on the north point a shaft was sunk to 12 ft. Here a bone sliver 3 in. long was found at a depth of 11½ ft., an unusual if not a prohibitory depth for primitive burial. On one side of this shaft an unbroken prism, including black surface soil and loess subsoil, was cut out, boxed and shipped bodily, to be mounted and exhibited in connection with the bones found in it.

A moment's reflection will show that a large amount of material was removed, at least 40 cubic yards, and yet a trifle less than 200 fragments were found, being 5 or 6 bits to the cubic yard, or a bone fragment for every 5 or 6 cubic feet of earth, thus showing how widely they were scattered. No whole bones were found save 3 or 4 finger bones. Out of this set of fragments the following pieces seem worthy of especial attention here: The half of a jaw with a solitary molar tooth, the condyle angle and symphyseal region weathered off, fragments of two other unrelated jaws, and a bony palate with the two back molars in place. The prize specimen found on this occasion was a skull broken, disarticulate and scattered over a space 5 by 5 ft. This was quarried out in blocks and will be preserved as such to illustrate the mode of occurrence. The skull wall is thick, measuring as much as 9 mm, or $\frac{3}{8}$ of an inch. One of the fragments of this skull is figured to show its pitted and etched surface. The writer has seen two other places where human bones have been found in the loess, distant from Gilder's mound a full mile in each case. In the meantime Mr. Gilder has extended the work of exploration and reports human bones in the loess in several new localities near Long's hill.

All this is more or less confirmatory of the existence of a loess bone-bed. During the writer's residence in Nebraska he can recall many occasions when students reported human bones in the loess of their community. On several occasions they have brought skulls identical with the present ones, if memory is reliable. None of these reports were verified, and yet they are a certain kind of evidence. In the State Historical Society there are skulls more or less fragmentary which seem to be of the loess type. Altogether there is at hand considerable evidence direct and indirect.

The lines of evidence everywhere have been leading toward belief in glacial man in America, and possibly the loess beds in Florence may furnish proof. Work is to be continued and everything possible is to be done for the sake of scientific accuracy. Everything is to be so ordered and arranged as to facilitate archæologists and geologists in the detection of errors and inaccuracies.

ERWIN HINCKLEY BARBOUR.

The University of Nebraska, December 20, 1906.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE American Association for the Advancement of Science held its 57th meeting in New York from December 27, 1906, to January 2, 1907. The meetings of this Association, which were formerly held in the summer, are now made the occasion of a general convocation of scientific societies during the Christmas holidays. The Association itself is divided into 11 sections, each meeting independently, and there are 20 affiliated societies, each holding separate meetings during the convocation. There is, therefore, an embarrassment of riches for the reporter, and the papers of interest to the student of archæology and history are scattered in so many sections that it is no small task to get hold of them all.

Attending first the session of the anthropological section we make note of the following papers: Some *Phases of Prehistoric Archaeology*, by Dr. George Grant McCurdy; *Notes on Ancient Puebloan House Construction*, by Mr. F. S. Dellenbaugh; *The Archaeology of Manabi, Ecuador*, by Prof. Marshall H. Saville; *The Aboriginal Use of Turquoise on the American Continent*, by Mr. George F. Kunz; *The Art of Glazing Among the Ancient Pueblos and the Relation of the Pueblo Indians of the Rio Grande Valley to the Ancient Cliff Dwellers of the Adjacent Plateaus*, by Mr. Edgar L. Hewett; *Pottery and Bone Objects Found in Vermont*, by Prof. George H. Perkins; *Recent Geological Changes as Affecting Theories of Man's Development*, by Prof. George Frederick Wright; *Racial Characteristics of the Humerus*, by Dr. Ales Hrdlicka; *Heredity in Head Form*, by Prof. Franz Boaz; and *The Harness Mound Exploration*, by Mr. William C. Mills. These and many other papers contain a vast amount of interesting information, but space permits us to give the details of only two.

According to Mr. Hewett, the art of glazing among the Pueblos was practised at a very early date, but the only method employed was that through the use of saline solution. After decorating the pottery it was washed in a saline solution and subjected to heat, which produced an enamel surface which was permanent. The early appearance of this art among the Pueblo Indians was certainly very striking.

Prof. Mills' report from the Harness Mound was of special interest. This mound, situated in the Scioto Valley, near Chillicothe, Ohio, is 160 ft. long, about 40 ft. wide, and 20 ft. high. In 1846 it was partially explored by Squier and Davis, who sunk a shaft from the center to the base and found what they supposed was an altar with

various relics. At a later date it was partially explored by Prof. Putnam, who dug a trench in from the south side to nearly the center of the mound. Numerous other partial explorations have been made by the representatives of the Smithsonian Institution. The result of all these explorations was that 15 burials were uncovered and a moderate number of implements of various sorts.

But Prof. Mills, in carrying on his work for the Ohio Archæological Society, made a clean work of exploration from one end to the other, with the astonishing result of bringing to light 130 burials and finding 1,217 implements of copper, a large number of bone implements of rare value and much finished pottery, revealing a special stage of culture.

The reason of the failure of previous explorers is owing to the fact that the burials were near the circumference of the base, so that a shaft sunk in the center was least likely to encounter anything of interest. Another interesting discovery was that of a series of post-holes, indicating that the burials were enclosed in wooden structures, which have since disappeared through decay. This fact brings the mounds of Ohio into an apparent connection with similar mounds found in Sweden, Southern Russia, the Crimea, and Central Asia, where the burials were first enclosed by stone structures and the whole covered by a mound of earth.

The extent of the commerce of the Mound builders is strikingly illustrated in all these explorations of Prof. Mills. Among the precious treasures deposited with the burials are numerous implements and ornaments of copper from Lake Superior, of obsidian from the Rocky Mountains, of mica from North Carolina, and of shells from the Gulf of Mexico, points distant 3,000 miles from each other. The full report of Prof. Mills' work will be awaited with much interest, especially as he for the first time finds indications of a higher culture among the early Mound builders than that which appears in later times.

As is to be expected, the Geological section had many papers of much archæological interest. Among the most important of these was one by Mr. Ellsworth Huntington upon *Deposits of Glacial Age in the Unglaciaded Regions of Central Asia*. In his recent travels through Persia and Central Asia Mr. Huntington has brought to light new and striking evidences of the climatic changes which have taken place in that region since man came into existence. Surrounding all the interior basins of the region there are extensive post-tertiary gravel terraces showing the existence of vast beds of water where now there is nothing but drifting sand and general desolation. In these terraces in the Tarim Valley he found new sites of ancient cities, which have been buried beneath the accumulations of gravel. There can now be no longer any question that the migration of races from Central Asia has been largely influenced by climatic changes, and that the capacity of the country for the support of the population was far greater in ancient times than it is at present.

Papers of great interest were presented by Prof. Tarr and Mr. F. E. and C. W. Wright concerning the recent changes which have taken place in Alaska, illustrating the rapidity with which recession of glaciers may take place. Since Prof. George Frederick Wright and his associates investigated the Muir Glacier in 1886 its front has receded 6 or 7 miles, making an average rate of recession of nearly $\frac{1}{2}$ a mile a year. There is no longer any doubt that, at the time of Vancouver's survey of Cross Sound, Glacier Bay was filled with glacial ice, as Prof. Wright maintained, fully 20 or 25 miles below the present front of the glacier.

On the other hand, some of the glaciers coming into Yakutat Bay and the eastern portion of the Malaspina Glacier have made sudden and rapid advance within 2 or 3 years. Large areas of ice near the front of these glaciers, whose surface was formerly so smooth that it could be readily traversed, had been broken up into serracs and crossed with fissures to such an extent that it is now impossible to overcome them. Prof. Tarr is inclined to think that this abnormal condition of things has been produced by an earthquake, which a few years ago set in motion immense snow-slides from the surrounding mountains, which brought so much material upon the upper part of the glaciers that they have produced a phenomena in the glacier analogous to the floods which occur in rivers having sources in mountains. It is well known that floods in the headwaters descend the river in a wave, whose progress the weather bureau forecasts, and upon which flat boats upon the Ohio, for example, float down with their burdens to their market places nearer the mouth of the streams; but in the case of a glacier the medium is so inelastic that the effect is a much longer time in being felt.

Those who recall the article in RECORDS OF THE PAST calling attention to the depth of the gorge of the Hudson River Valley as it passes New York City and crosses the bordering shelf of the continent submerged by shallow water, to the deep depression of the Atlantic Ocean, will be interested to learn that in the efforts of the engineers to carry an aqueduct for city water across the Hudson above West Point, it was discovered that the depth of the pre-glacial valley there is 489 feet, thus fully confirming the conjectures that in pre-glacial times the gorge followed by the Hudson was nearly twice as deep as it is at the present time.

Prof. W. G. Tight, of the University of New Mexico, presented interesting and most important evidence showing that the Bolivian Plateau in South America had been covered with vast sheets of glacial ice, coming down in recent times from the lofty peaks in the interior, thus showing that there was a glaciation of the southern hemisphere practically contemporaneous with that of the northern.





REMAINS OF THE VILLA OF THE COMMANDER OF THE
"COHORT CASTELLUM" AT THE CHESTERS ON THE
LINE OF THE "MURUS" IN NORTHERN ENGLAND

THE DEVELOPMENT OF THE SYSTEM OF BOUNDARY FORTI- FICATIONS IN BRITAIN AND GERMANY, UNDER THE ROMAN EMPIRE

PART II

ROMAN BOUNDARY FORTIFICATIONS IN BRITAIN

WE MAY now turn our attention to Britain and consider briefly the measures taken by the Romans during the earlier period of their rule in that island to provide for the security of their possessions. For it will appear that the boundary defenses in Britain and Germany developed for the most part along parallel lines from the period of Hadrian.

The first boundary which was established after the definite extension of Roman authority to Britain is thought to have extended from Colchester (Camolodunum) to Glevum (Gloucester). But the area of the province was soon enlarged and no visible trace of this early boundary has been left. According to one interpretation of a doubtful passage in Tacitus (Ann. XII, 31; cf. Furneaux's note), Ostorius Scapula, the second Roman governor of Britain (47-51 A. D.), adopted as the boundary of the province a line following the Severn, Avon, Trent and Humber, from the Bristol Channel to the North Sea. It is significant, perhaps, that a Roman road, the Foss Way, runs a little below this line and would have offered a means of communication between the forts (*castella*) which must have been erected at intervals

along the frontier. Later we find Ostorius engaged in fortifying with castella a boundary in South Wales against the Silures.¹³

During the years which followed immediately after the death of Ostorius little progress was made in enlarging the Roman province in Britain. Yet the words of Tacitus in this connection¹⁴ point to the usual manner of advancing the military limits of the province. At all times in Britain detached forts seem to have existed beyond the regular boundary line. These were doubtless intended, during the earlier period, as outposts to prepare the way for a subsequent general advance.

At the time of Suetonius Paullinus (58-61 A. D.) Chester (Deva) and Lincoln (Lindum) were the more northern legionary camps.



THE "MURUS" NORTHERN ENGLAND

Cerialis (71-74 A. D.) reduced to subjection a portion of the Brigantes,¹⁵ who dwelt in Yorkshire, and probably added to the Empire the site of York, which was later the most northern legionary fortress.

By 80 A. D. Agricola had probably carried the Roman arms to a point at or near the Northern Isthmus; he spent the following summer in securing the new territory by means of a line of fortified posts extending from the Forth to the Clyde.¹⁶ These stations probably correspond in size with the small forts on Domitian's German boundary line and not with the larger cohort castella. After the recall of

¹³Tac. *Ann.* XII, 38.

¹⁴Tac. *Agricola*, 14 *paucis admodum castellis in ulteriora promotis*; cf. Herzog, p. 54.

¹⁵Tac. *Agric.* 17.

¹⁶Tac. *Agric.* 22, 23.

Agricola, in 85 A. D., this new line was abandoned, but probably not all the territory occupied by him was given up. For York (Eburacum) was almost certainly at this time the site of a legionary camp. Legionary camps, moreover, on land frontiers were always situated some distance to the rear of the actual boundary. It would follow, therefore, that there was still a considerable stretch of Roman territory north of York. Some isolated forts on the Lower Isthmus between Solway Firth and the estuary of the Tyne may have been erected by Agricola to secure the territory in the rear during his advance to the Firth of Forth in 79 and 80 A. D.¹⁷ It is possible that these continued to be garrisoned as outposts after his recall.¹⁸ But the earliest comprehensive system of works on this line is to be ascribed to Hadrian, who made changes and improvements in the system of defense on all the boundaries of the Empire.¹⁹

The continuous barrier carried in Hadrian's reign across the island from the Solway Firth, near Bowness, to the estuary of the Tyne, though consisting of earthen ramparts with an accompanying ditch, is usually referred to as the *vallum*. Hadrian's biographer, Spartianus (vit. Hadr. 12), says of Hadrian that he excluded the barbarians from the Empire by means of palisades along the land boundaries. There is a tradition to the effect that remains of stakes have been found on the *vallum*.²⁰ Their presence, if proved, would be striking evidence for the identification of the works which we are describing with those mentioned by Spartianus.

The *vallum* of Hadrian is made up of two parallel mounds with a fosse or ditch between them. They are distant 24 ft. from the northern and southern margin of the ditch respectively. The ditch had originally a flat bottom. Its dimensions vary. In many places it has been found to be 30 ft. wide and 7 ft. deep. At one point in the mound on the south side remains of a stone foundation have been discovered.²¹

The remains of about a dozen forts have been brought to light on the south side of the *vallum*. Two of these (Magnæ and Vindolana) were fortified with stone, the others with earthworks. Although some of them are separated from the *vallum* by an interval of one-half to three-quarters of a mile it is evident that they formed part of the same system of defenses. They were erected for the cohorts and *alæ* which were to defend the barrier. The arrangement was, therefore, essentially different from that of Domitian in the Taunus region. There the main garrisons were located in the interior of the province and detachments only were sent to the line of the boundary where small forts were erected for their protection. The course of the *vallum* in Britain has fewer deviations from a right line than the earlier *limes* of Domitian in Germany.

¹⁷Tac. *Agric.* XX, 21.

¹⁸Bruce, *Roman Wall*, p. 25.

¹⁹Dio Cassius, LXIX, 9.

²⁰Krüger, *op. cit.* p. 5.

²¹Krüger, *op. cit.*, p. 5.



SECTIONAL CUTTING IN THE ANTONINE VALLUM IN SCOTLAND, SHOW-
ING THE STONE FOUNDATION OF THE EARTH MOUND



REMAINS OF A STONE TOWER ERECTED DURING THE REIGN OF
ANTONINUS PIUS ON THE "LIMES" IN THE ODENWALD, GERMANY

The reforms of Hadrian mark a distinct epoch in the development of the works along the frontier boundary in Germany. The line there was straightened as much as possible, for in this period of undisturbed peace its administrative outweighed its military significance; nevertheless the limes was now fortified, along its whole extent, from the Rhine to the Danube. The defenses consisted of a palisade formed of stakes which were sunk into the ground to the depth of 4 ft. (1.4 meters) and secured by stones serving as wedges. The stockade was at least 6½ ft. (2 meters) high above ground. The stakes were of fir wood. They were tied together by other stakes fastened horizontally. At this time the cohorts and *alæ*, which had been stationed in the older forts between the Taunus range and the Main, were transferred to the boundary and provided with new fortresses. The new *castella* were not on the boundary line, but were separated from it by moderate intervals, as was the case also on the other portions of the German boundary. Some of the new camps had defenses in stone, others only earthworks. Their sites corresponded with those of the small forts of the earlier period at points where roads crossed the frontier. All these changes tended to increase the similarity of the arrangements in Germany with those of the new system of defenses in Britain.

Antoninus Pius reoccupied the older line of Agricola and erected a new barrier in Britain, probably in 143 A. D., extending from the Clyde to the Forth, a distance of 37 miles. This line of works, usually called the Antonine Vallum, consists of a turf rampart and ditch. Recent cuttings have shown that it stands upon a foundation layer of stone about 14 ft. broad. At the *castellum* of Castlecary the ditch, which forms the outside member of the Antonine fortification, was found to be 40 ft. across at the top and about 10 ft. deep. The rampart was separated from it by a berm 21 ft. in width.²²

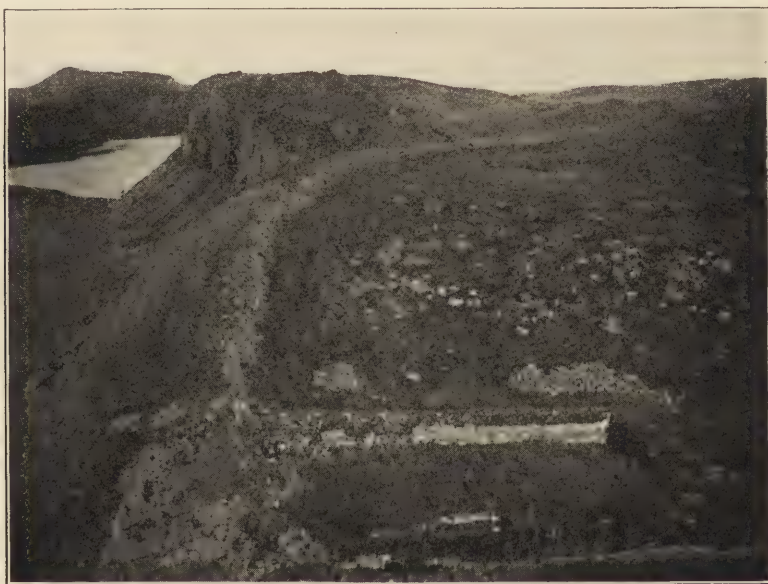
In locating the *castella* a new policy was adopted. They were placed in juxtaposition with the vallum so that the northern wall of each fort was in alignment with the turf rampart which crossed the island. Most of the forts on this line were probably defended by earthworks, but at least one of them, Castlecary, was provided with stone walls. In Scotland there exist remains of many detached forts between the vallum of Hadrian and that of Antoninus Pius and even north of the latter; but such are not found in Germany beyond the frontier.

The period of Antoninus Pius was one of activity on the frontier boundary in Germany also. Early in his reign many forts and towers were reconstructed in stone, especially in the Odenwald, between the Main and Neckar. But about 155 A. D. a new boundary line was laid off to the east of the Odenwald-Neckar line. It left the Main at Miltenberg and extended in almost a straight line to Welzheim near the northwest corner of Rhætia. The forts and towers on this line were

²²*Excavation of Castlecary Fort on the Antonine Vallum*, reprinted from the Proceedings of the Society of Antiquaries of Scotland (Edinburgh, 1903), p. 19.

erected from the first in stone. In fact, from the time of Antoninus Pius all new structures of this class and restorations of old ones in Germany seem to have been in stone. This emperor did not locate the forts of the Miltenberg-Welzheim line directly on the frontier boundary, as he has done in Scotland, but a short distance to the rear.

The frontier fortifications in Germany reached the final stage in their development with the erection of the stone wall, the so-called "Teufelsmauer," along the boundary in Rhætia, and the construction of the earth rampart with accompanying ditch, the "Pfahlgraben," on the German line. The stone wall in Rhætia is exceptional in having no ditch. The date of construction of these works has not been determined, nor is it known even whether they were erected at the same time²³ The "Teufelsmauer" is 109 miles (175 kilometers) in length,



A "MILE CASTLE" WITH A PORTION OF THE "MURUS,"
NORTHERN ENGLAND

over a yard thick and at least 8 ft. ($2\frac{1}{2}$ meters) in height. The "Pfahlgraben" is over 200 miles (320 kilometers) long. The ditch which accompanies it was originally $19\frac{1}{2}$ ft. (6 meters) broad and 8 ft. ($2\frac{1}{2}$ meters) deep. As a whole the line of defenses as thus constituted, including the stretch formed by the Main north of Miltenberg, was 342 miles (550 kilometers) in length and was provided with 80 forts and about 900 watch towers.²⁴

The Emperor Septimius Severus either himself gave up the more northern barrier of Antoninus Pius in Britain, or made no attempt to

²³Herzog (p. 76) is inclined to ascribe the erection of the stone wall to the period of Marcus Aurelius.

²⁴H. Jacobi, *Tuher durch das Romerkastell Saalburg*, p. 5. Fabricius, *Die Entstehung der römischen Limesanlagen*, p. 13, gives the towers as over 1000 in number, the castella as 100.



THE COURSE OF THE "MURUS" NORTHEAST OF THE "CASTELLUM" OF
HOUSESTEADS (BORCOVICUS)

recover it after a previous abandonment. He reinforced the works on Hadrian's earlier line by the construction of a new fortification, a turf rampart with a ditch, but the course of this new line of works lay to the north of Hadrian's vallum. The interval between the rampart and the ditch varies. It is usually 25 to 50 yards but in some places it is as much as 800 yards.²⁵ For the builder of the later turf wall was more concerned with securing points of vantage towards the north. The portion of the turf wall which has been brought to light, near the fort of Birdoswald (Amboglanna), is from 12 to 15 ft. in thickness and has a ditch with a V-shaped profile. The ditch is about 32 ft. broad and is separated from the rampart by a berm, or level strip of 10 ft. Stone forts were erected along the new line of defense, their northern walls being on a line with the course of the turf rampart.

At a later period, which has not been accurately determined, the turf rampart was replaced by a stone wall (*murus*). The stone wall seems to occupy the place of the earlier turf rampart throughout most of its course, so that the same ditch, somewhat enlarged, continued to be utilized. But for a distance of about 2 miles the line of the stone wall diverges from that of the turf rampart and runs to the north of it. This portion of the barrier includes the site of the fort of Birdoswald (Amboglanna); in this section vestiges of the turf wall have

²⁵Bruce, p. 16, and Krüger, p. 8.

been discovered. The stone wall varies in thickness, the average being about 6 ft.²⁶ It was 80 Roman miles in length and originally not less than 12 ft. in height.

The same forts served for the turf rampart and the later stone wall. Their ramparts, erected in stone, had about the same thickness as the stone wall. At the time of building the wall some of the more important forts were extended towards the north so that they project for about a third of their length beyond this later fortified line. Birdoswald (Amboglanna) is an exception, for there the course of the stone wall lay to the north of that of the turf rampart, as has been explained. The extension of this fort carried its sides only up to the wall. The forts of this larger class have 6 gates, 2 on each of their long sides. The more northern of the side gates open at the points where the stone wall, if extended, would intersect their ramparts.

Besides the forts the wall was provided with smaller redoubts which are called mile-castles, because they are located at intervals of approximately a Roman mile. Their dimensions are about 60 by 50 ft. The wall forms their north side. There were also towers, probably 4 between every 2 mile-castles, having an area of about 10 by 12 ft., the wall formed their north side also. All the roads which passed to the north touched the forts and mile-castles.

GEORGE H. ALLEN.

University of Cincinnati.



ANNUAL MEETING OF THE ARCHAEOLOGICAL INSTITUTE OF AMERICA

THE Archaeological Institute of America held its annual meeting in Washington from January 2 to January 5, 1907, Prof. Thomas Day Seymour, of Yale University, presiding. A large number of papers was presented, all of which have more or less general interest, but we have space here to call attention to only a few. In a paper by Prof. Charles C. Torrey on *Traces of Portraiture in Old Semitic Art*, it was shown through a series of illustrations that the faces which appear in Assyrian and early Babylonian sculptures are more individual than had been formerly supposed and were probable representations of actual kings. The conventional head-dress and beard, however, is so prominent that only close attention to the features brings this fact out. When seen together, so that comparison can be readily made, their individuality is clearly evident.

Prof. Harold N. Fowler, in an illustrated paper upon the *Beginnings of Greek Sculpture*, brought out clearly the fact that the sculptures in wood, which were found in Greece and which are of inferior char-

²⁶See Bruce, p. 20, and Krüger, p. 3. According to Bruce the prevailing width is about 8 feet.

acter, were by no means representative of the earliest art. Its inferior character is in striking contrast to the sculptures in wood which were found in Egypt hundreds, probably thousands of years earlier.

We give below a full list of the papers:

Pre-Roman Antiquities of Spain, by Prof. Paul Baur; *Discobolia*, by Prof. John Pickard; *The Discovery*, by Prof. Gustavo Giovanonni, of *Curves in plan concave to the exterior in the facade of the Temple at Cori*, by Prof. William H. Goodyear; *Itlatlalnamictiliz Tepoztecatl*, by Mr. Edgar L. Hewett; *Mounds Discovered by the Ohio Archaeological Society*, by Prof. George Frederick Wright; *Archaeological Notes*, by Dr. Arthur Stoddard Cooley; *The Temple at Ostia*, by Mr. Albert W. Van Buren; *Sardes*, by Mr. Oliver M. Washburn; *An Interpretation of the So-called Harpy Tomb*, by Prof. Oliver S. Tonks; *Notes on Greek Vases at the University of Pennsylvania*, by Prof. William N. Bates; *The Beginnings of Greek Sculpture*, by Prof. Harold N. Fowler; *Vases Illustrating Some Points in the Occupation of Greek Women*, by Miss Gisela M. A. Richter; *The Visitation of Luca della Robbia at Pistoia*, by Prof. Allan Marquand; *The Dome in the Architecture of Syria*, by Prof. Howard Crosby Butler; *New Inscriptions from Sinope*, by Dr. David M. Robinson; *New Inscriptions from the Asclepieum at Athens*, by Prof. William N. Bates; *On the Stele Inscription in the Forum*, by Prof. Minton Warren; *Codrus' Chiron (Juvenal 3, 205) and a Painting from Herculaneum*, by Prof. Francis W. Kelsey; *Traces of Portraiture in Old Semitic Art*, by Prof. Charles C. Torrey; *Three Archaic Bronze Tripods in the possession of James Loeb, Esq.*, by Prof. George H. Chase; *Aphrodite and the Dione Myth*, by Dr. George Depue Hadzsits; *Pompeian Illustrations to Lucretius*, by Prof. Francis W. Kelsey; *Two Representations of the Birth of Dionysus*, by Dr. James M. Paton; *Archaeological Treasures of the Crimea*, by Prof. George Frederick Wright; *The Relative Importance of Casts and Originals for the Study of Ancient Sculpture*, by Dr. Edmund von Mach.



BOOK REVIEWS

SCIENTIFIC CONFIRMATIONS OF OLD TESTAMENT HISTORY*

IN THE preface of this new book by Professor Wright, dated November 3, 1906, he states that its principal themes were presented in the Stone Lectures at Princeton in 1904. The next year he made a third extended visit to Egypt, Palestine, and other countries of the Old World, for the completion of this investigation and discussion of the Old Testament History.

**Scientific Confirmations of Old Testament History*. By G. Frederick Wright, D.D., LL.D., F.G.S.A. Pages xviii, 432; with 32 illustrations and 8 maps. Oberlin, Ohio, Bibliotheca Sacra Co., 1906.

The subjects of the 12 chapters are as follows: The Witness of the New Testament; Middle and Later Jewish History; Israel in Egypt; The Exodus; Physical Preparation for Israel in Palestine; Traditions of the Deluge; Scientific Credibility of the Deluge; The Glacial Epoch as a *Vera Causa*; Evidences of a Deluge in Europe; Evidence of a Deluge in Asia; The Deluge in North America; and Genesis and Science.

This work is the matured result of studies by Professor Wright during the last 14 years in which he has held at Oberlin College the professorship of The Harmony of Science and Revelation. Another part of his studies, on the origin and antiquity of the human race, will form a later volume.

Many instances of the miraculous intervention of God, recorded in the Old Testament, changing the ordinary operations of nature, as when the people of Israel crossed the beds of the Red Sea and of the Jordan on dry ground, are referred to exceptional natural agencies called into action by Providence at the opportune time and place.

The Bible narrative explicitly says that the water of the Red Sea was removed "by a strong east wind, which blew all night" and "made the sea dry land," and when the water returned and overwhelmed the pursuing Egyptians, it was God who "did blow with his wind that the sea should cover them."

Concerning the parting of the waters of the Jordan, recorded in the third chapter of Joshua, Professor Wright says:

This is certainly a very simple and straightforward description of a natural phenomenon. There is nothing fantastic about it, and nothing incongruous with the surrounding condition. It is said that the waters from above, that is, upstream, rose up and extended as far as the city of Adam, a distance of several miles, and that the supply of water was cut off that formerly ran down to the Salt Sea. This is a very accurate account of what would occur if suddenly a dam was thrown across the stream, some little distance above, ponding the water back on that side, and cutting off the supply below. When first visiting the scene, I was greatly surprised to see that I had not read the account with sufficient care to appreciate its simplicity and accuracy.

There are two natural agencies that at this point could easily have produced the phenomena here described. By some it has been thought that the obstruction was caused by a land-slip somewhere above, which temporarily cut off the water below. But it is equally possible that the obstruction was produced by a gentle swell of the land across the channel pushed up by an earthquake.

The Noachian Deluge is thought by Prof. Wright to have covered only a part of Asia and to have occurred at some time during the Glacial period, when thick sheets of ice were accumulated by snow-fall on the northern half of North America and on northwestern Europe. The time of final melting away of these ice-sheets, according to careful computations and estimates by many American and European geologists, was between 10 and 5,000 years ago.

From his very extensive explorations of the glacial drift and his important published works on that period, the author notes many and widely extended evidences of marine submergence of coastal parts of the glaciated lands at the time of final departure of the ice-sheets. At

the same time other large inland areas were temporarily covered by glacial lakes, pent up in basins formed on one side by land slopes and on the other by the barrier of the retreating ice. These flooded conditions upon large parts of the glaciated regions are very interestingly correlated with the flood from which Noah and his family were saved.

Students of the Bible and of geology will find this a very helpful book for its light on the relationship and harmony of the twofold revelations of God to man, in the written word and in the creation of the world.

St. Paul, Minn.

WARREN UPHAM.



BIBLE SIDE LIGHTS FROM THE MOUND OF GEZER*

THIS beautifully printed and amply illustrated volume is issued as a fore-runner of the full publications of the Palestine Exploration Fund. That publication will be so technical and will be so long delayed that the necessity of popularizing it and of giving the main results in advance is very readily seen. The exploration of no site in Palestine has been more fruitful in results than that of Gezer, whose situation was unknown 30 years ago. The discovery was made by Prof. Clermont-Ganneau through a chance reference of a mediæval Arab in history. The place is about 5 miles southeast of the modern town of Ramleh. The ruins consist to the eye of a mound of earth some 40 ft. in height resting upon a rock eminence and admirably adapted for defense in early times. The exploration of the remains by the author of this volume reveals successive strata of debris enclosing the remains of as many successive stages of culture. As early as 3,000 B. C. the bare rocky hill was occupied by a primitive race of cave dwellers, who 500 years later were evidently driven out by a stronger and more civilized people, supposed to be the Canaanites, who were contemporary with Israel. At a later period these were conquered by the Egyptians of the Middle Empire. Gezer was captured by Thothemes III and remained under the suzerainty of the Egyptians for a long period. References to Gezer in the Bible are numerous. The King of Gezer assisted Lacish to resist the siege by Joshua. Later, Gezer was allotted to the Levites. In the time of David the Philistines were in possession of the city and were not wholly driven out until Solomon's time.

The results of the author's explorations in illustrating the historical references of that early period are far greater than was expected. For a full appreciation the reader must refer to the volume itself. We content ourselves with giving somewhat fully the statements illustrating how Samson pulled down the temple upon the Philistines who were making sport of him.

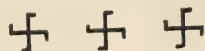
**Bible Side-Lights from the Mound of Gezer*, A Record of Excavation and Discovery in Palestine, by R. A. Stewart Macalister, M.A., F.S.A., Director of Excavations, Palestine Exploration Fund. Illustrated. Charles Scribner's Sons, New York, 1906.

In the course of the excavation, in a stratum some 300 years older than the time of Samson, was found a building which answered the required conditions of the story to a remarkable extent. That it was a temple of some sort was indicated by religious emblems found within its precincts, and by a waste-pit full of sheep-bones, apparently those of sacrificial victims. The building was much ruined, only the foundations remaining; but enough was left to enable us to restore it with a considerable degree of probability.

We see a forecourt, with a row of four column-bases separating it from a paved area. It is certain that these bases were meant for the support, not of stone pillars, but of vertical posts of wood, like the *cedar pillars* of Solomon's house, I Kings vii:2; and were intended to prevent their comparatively narrow ends from sinking into the ground under the pressure of whatever weight they had to bear.

If we picture this Gezer temple, and like it the temple of Dagon at Gaza, as having a portico supported by four wooden pillars we can get rid at once of the monstrous conception of Samson snapping two great stone pillars to which artists have accustomed us. Nor is there anything in the Bible to warrant such a conception. On the contrary, the whole description of Samson's feat points to the action that would be necessary in pushing or pulling a wooden beam so that its foot would slide over a stone at the base. *He took hold of the two middle pillars and leaned upon them—and he bowed himself with all his might, and the house fell.* The words evidently denote a sudden impulse producing a slight displacement of the pillars, which would then fall of themselves. To adopt this reading of the story in no way detracts from the glory of Samson's strength and achievements. It brings the story into the region of the possible, but it does not take it out of the region of the marvelous.

GEORGE FREDERICK WRIGHT.



THE GLACIAL HISTORY OF NANTUCKET AND CAPE COD*

THIS volume adds another chapter to the increasing wonders of the Glacial Period. Heretofore, three centers for the accumulation of glacial ice had been recognized: 1. In the Cordilleran Mountains on the Pacific Coast south of Alaska, which sent its ice sheet southward to Puget Sound and northward to the Yukon River; 2. The area west of Hudson's Bay from which there was a southward movement, according to Chamberlin and Salisbury, to the southern part of Illinois, a distance of 1,600 miles, and northward to the Arctic Ocean; 3. Labrador, from which the movement extended to the southern part of Ohio and to New York City. The author has demonstrated that there was a fourth center located in Newfoundland during a time of extensive land elevation. The effect of this movement is found in boulders transported southwestward to Nantucket. That the material transported was by land ice and not by floating ice seems amply demonstrated by the author. The work represents a great amount of original exploration and a masterly comprehension of the details involved. The conclusions of the author can not well be avoided.

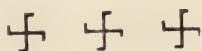
GEORGE FREDERICK WRIGHT.

**The Glacial History of Nantucket and Cape Cod*, with an Argument for a Fourth Center of Glacial Dispersion in North America, by J. Howard Wilson, A.M., Ph.D. The Columbia University Press, New York, 1906.

REPORT OF THE WISCONSIN ARCHAEOLOGICAL SOCIETY

The Wisconsin Archeologist for the months from April to October, 1906, consists of a Record of Wisconsin Antiquities. The Secretary and Curator of the Wisconsin Archeological Society, Chas. E. Brown used as a basis such parts of the *Catalogue of Prehistoric Works East of the Rocky Mountains** as pertained to Wisconsin. All known material of an archaeological nature is noticed under the township and county where it was found, and note is made as to the time of discovery and references to printed reports are given. Sixty-one of the 71 counties in the state are represented. The excellent work of the Wisconsin Society is indicated by the fact that, although the society has been organized only 5 years, this report adds records from 12 counties not included in Dr. Thomas' work. The value of the work as a basis for further investigation can hardly be overestimated. The author in his introduction says, "Though very incomplete and but little more than an index to the archaeological wealth of our state, the present record should furnish an excellent basis for future researches and will, it is hoped, encourage further contributions to our as yet meager knowledge of Wisconsin archaeological history." It is to be regretted that more of our states have not societies working so steadily and practically upon problems of local archaeology.

The report is well illustrated by half-tones of some of Wisconsin's archaeologists, mounds and implements and by a map showing the location of single mounds, groups of mounds, including those in the shape of effigies.



EDITORIAL NOTES

INDIAN ARROW STAND.—A "rich arrow" stand has been reported as discovered at Conesus Lake, N. Y. There is a larger proportion of war arrowheads found here than is usually the case.

TO ENFORCE ARCHÆOLOGICAL LEGISLATION.—Gen. George B. Davis, judge-advocate general of the army, has been appointed to represent the War Department on the committee to enforce the act of Congress of June 8, 1906, for preserving American antiquities. The representatives of the Department of the Interior are Mr. W. Bertrand Acker, chief of patents and miscellaneous division of the Secretary's office. The representatives of the Department of Agriculture and the Smithsonian Institution have not yet been announced.

*Dr. Cyrus Thomas, Bureau of Ethnology, Smithsonian Institution, 1891.

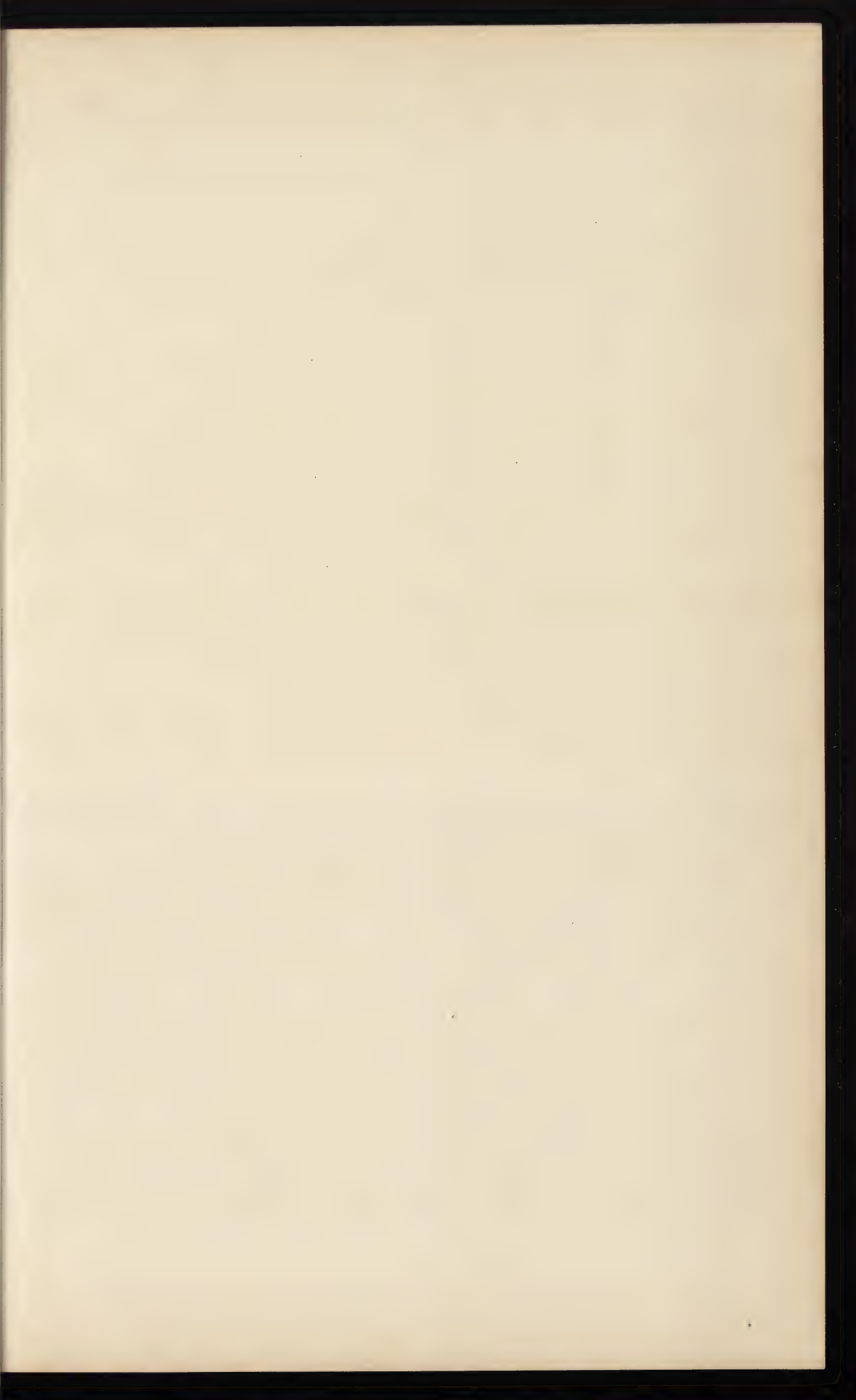
CAMPANILE AT VENICE.—The work of restoring the Campanile at Venice is progressing rapidly, and the plans show that the external appearance of this old familiar landmark of Venice will be preserved, while internal improvements, such as an electric elevator will be made. The most important fragments of the tower have been recovered from the debris and are being restored with great fidelity. Among these are the bronze gates, the ancient Logetta, the golden angel, which crowned the summit and the bell. The most remarkable piece of restoration, however, is that of the statue of the Madonna which was broken into over 1,600 fragments, but has been so skilfully put together that "it is impossible to believe that it could have been once so apparently hopelessly damaged."

NUBIAN MANUSCRIPTS.—While examining some sheets of parchment bought at Cairo for Coptic manuscripts, Carl Schmidt made a discovery of much importance to philology and history. The repetition of the word "Uru," which among modern Nubians means king, convinced the German savant, who is an authority on Coptic and the early Christian archæology of Upper Egypt, that the text was Nubian, a language which, although still spoken, is no longer written. The manuscripts date from the VIII century A. D., and are translations of Christian works in which frequent references to St. Paul are made. One manuscript is a collection of extracts from the New Testament, and the other a hymn of the cross. The Greek original of the hymn is not known. When the documents are deciphered philological science will be enriched by the knowledge of the language spoken by the people of Nubia before the invasion of Semitic tribes, and the mysterious inscriptions on many of the Egyptian monuments may be read. [*Scientific American.*]

MARBLE HEAD FOUND IN BELGIUM.—In 1905 a marble head was found near Ottignies, Belgium, which is described in the *Bulletin des Musées Royaux a Bruxelles*. Its especial value lies in the fact that it is probably the only ancient marble figure preserved in Belgium. Almost always the Roman artists made the figures of their divinities and their funeral monuments of the limestone and sandstone of the region, for the obvious reason that marble had to be brought from so great a distance. Although this relic is badly mutilated, yet it is possible to recognize the head of a woman with her hair parted in the middle and falling down on each side. This was the fashion of the latter part of the II century and the III century A. D. The sides of the head and the nape are missing. The head was made in separate pieces fitted together and, without doubt, the lines of joining were hidden by a colored stucco. Evidently the sculptor could not secure a single piece large enough for his purpose. The date assigned is the time of Severus. In all probability it is the portrait of some rich gentlewoman, and was intended for her funeral monument. As the back is neglected, the figure may have been placed in a niche.

FURTHER NOTE ON THE DOME OF SS. SERGIUS AND BACCHUS AT CONSTANTINOPLE.—After the article by Dr. Allan Marquand was received by us for publication [See RECORDS OF THE PAST for December, 1906], the following additional note was forwarded by Dr. Marquand from Professor Howard Crosby Butler, of Princeton University, who visited Constantinople recently. "The latest description of this dome, that of Mr. Lethaby, does not appear to me to be altogether accurate. He is certainly inaccurate in saying that each angle of the octagon is rounded into a niche, since the octagon below the dome shows 8 obtuse angles, but no niches. The cells of the dome over the angles are concave to the interior, as he says; but so are the others when they come to the sharp curve of the dome, though they are not so deeply concave as the former. Taking the dome by itself, it seems to me that we may consider the lower portion as a sort of drum with 16 sides inclined slightly inward, alternate sides being concave. This drum extends up to the level of a line drawn through the dome windows, just below their arched tops. Above this level the sharp curve begins and the flat sides become slightly concave. Sections cut through the dome at 3 different points, viz., through the ribs, through the concave sides, through the flat sides which become concave, would show 3 different profiles. As the cells approach the apex of the dome, all become nearly flat."

ARTEMIS EPHESIA.—During 1904 and 1905 the British Museum bore the expense of re-examination of the site of the temple of Artemis at Ephesus. The complete ground plan of the temple of the VI century B. C. was discovered below the Hellenistic stratum, and much new evidence of its architectural character, as well as many small objects, including cult-figurines of the goddess. The remains of 3 distinct temples of the period before Croesus were found. These were smaller than the others, one being apparently a *naos* large enough to contain a statue and altar. "The foundation of this shrine lies at the intersection of the *axes* of all the successive temples alike, and it is evident that at all periods it was the central Holy of Holies where stood the cultus-statue." This central structure was found to be a platform made solid with a filling of flat slabs, with a quantity of small gold, electrum, silver, bronze, ivory and amber objects, even some electrum coins of early date. Many are articles of personal adornment undoubtedly placed there for the use of the goddess, whose statue stood above. They seem to belong to the VIII and VII centuries B. C. At a little distance were found many other relics of similar age, especially five statuettes, and other objects in ivory, crystal, metal, etc., and coins, but little jewelry. There are many representations of Artemis and her attributes, showing that she was locally personified from the VIII to the IV centuries B. C.





TEMPLE AT DOUGGA, ALGERIA



ARCS AT THE ENTRANCE TO THE FORUM, KHREMISSA, ALGERIA

RECORDS ^{OF} THE PAST

VOL. VI



PART III

MARCH, 1907



ROMAN NORTH AFRICA

A TWO-FOLD pleasure awaits the tourist in Tunis and Algeria, for in these countries more readily than anywhere else he may study the power of ancient Rome as expressed in innumerable ruins, and at the same time become familiar with the curious aspects of an Oriental and a European civilization, existing side by side, and yet exercising very little influence, the one upon the other.

Nowhere else, not even in Italy itself, may be seen more of the massive and imposing monuments of Roman construction; monuments which here mark the tremendous importance of the Roman provinces at the zenith of their development. To-day the very solitude and desolation of the regions in which they are found make one appreciate the more the skill and energy of a people which could turn even such a desert to profit and account.

Of no less interest is the existence in such close juxtaposition of the French and Arabs; the former reproducing very closely the manners and language of their mother country, plus a certain crudeness, and also a sturdy independence, common to all builders-up of a new country; the latter showing the characteristics of Eastern races, with manners and customs far different from our own.

A strange and interesting sight is offered to the newcomer by a walk through the streets of Tunis. More tongues the Tower of Babel could hardly have furnished. Arabs, Moors, Bedouins, Italians,

Frenchmen, Spaniards, Greeks, Englishmen, Germans, all have countless representatives, who not only speak their own language, but usually several others as well. Huge Arabs, almost concealed from view by their voluminous garments, stalk majestically along. Many of them wear beards of the sketchy type, trimmed close to the face and covering it only in part. They seem especially fond of flowers, and carry ridiculous little bunches tucked behind their ears or held in their hands in a manner reminding one of the affected pinching of the garment between the thumb and forefinger, which early Greek art shows to have been once in vogue among womankind. On the feet they wear a heelless shoe which requires a curious shuffling gait to keep it in place. Next in importance as regards numbers, come the Italians, with whom Tunis literally teems. They far outnumber the French population, and in certain quarters of the city one hears little else spoken. The one language that every one learns, however, is Arabic, for the learning of French is not compulsory as it is in Algeria.

The points of interest of Tunis and its environs are too well known to require much description. Every one makes the trip to Carthage, but it requires a powerful imagination to reconstruct the ancient city from the scanty vestiges which remain. The pools of water below the citadel bear little resemblance to the famous harbors which nourished a commerce too important to be endured by mighty Rome. Of greater importance is the museum which the Peres Blancs have instituted on the summit of the cliff, and which is rich in evidence of the Punic inhabitants, whose buildings have been obliterated by later Roman constructions. These Roman remains themselves have now nearly disappeared before the onslaughts of time or of more destructive vandals. They now lie deep buried, and it requires careful excavating to bring to light the foundation plans, the rich mosaics which covered the floors, and the thousand and one objects for household use or adornment which fill to overflowing the museum at the Bardo, near Tunis. Days may be spent in the study of the museums; in strolling through the narrow shop-lined streets of old Tunis; in bargaining for curios in the quaint little shops, or in watching the crowds in some open place when a snake-charmer appears with his squirming pets.

Farther from Tunis and less frequently visited, are the ruins of the Roman Dougga. To reach them one goes by train westward to Medjez-el-Bab, so called from a Roman arch which has gone the way of so many antiquities—into the walls of the neighboring houses. From that place a three-horse diligence takes the traveler 30 mi. southward to TebourSouk, through a country resembling in many respects the more neglected portions of southern California.

The miserable huts of the native population dot the landscape, and traces of French occupancy are visible in the excellent roads and bridges and well-tilled farms, and yet all this becomes quickly subordinate and one's thoughts are occupied with the time of Roman



CARTHAGE

rule. The reason for this lies in the tangible evidence of Roman occupation which meets one at every turn. Innumerable are the traces of roads, bridges, aqueducts, houses, fortresses, tombs, arches, theaters, and entire cities, which show that the country must once have presented a far different aspect from the present relatively unimproved condition. And in this change lies the reason for the presence of so many ruins. In fertile Italy succeeding generations of cultivators have wiped out the traces of all that went before. Here the skill of the Romans made the desert blossom like the rose, only to become a desert again when they passed away, with no one to disturb the massive structures they left behind. In the earlier years of French rule, before the establishment of archæological commissions, more damage was done to the Roman remains than through all the preceding centuries.

Four miles from Teboursouk are the ruins of Dougga, overlooking a deep valley on one side, and a vast expanse of rolling plain and distant mountains on the other. In the midst of an apparently inextricable mass of hewn blocks of stone, marble columns, and walls of buildings, is the squalid group of huts making up a native village. Here one must take a native as guide and from the confusion gradually evolve the plan of the ancient town.

A sharp scramble over huge blocks of stone leads to the first recognizable structure, the theater, having still intact the semicircle of seats from which the amusement loving Romans once beheld the stage, or let their gaze wander out over the plain beyond. The stage itself is now marked by stumps of columns, niches for statues, and

fragments of richly carved marble decoration. On the other side of the group of huts arise the 6 Corinthian columns of excellent workmanship belonging to a tetrastyle temple. All of the columns are still erect and above the 4 of the facade is the entablature, with sculptured pediment. Near by is a triumphal arch with opening flanked by channeled Corinthian pilasters. The columns which stood before these have disappeared. In the piers are niches which once held statues. Almost every city of the Romans has monuments of this character which, from the massiveness of their construction, still stand, though everything else may have fallen in ruins.

For several hours one can climb about, meeting at every turn traces of temples, tombs, cisterns, dwelling places, and other buildings of known and unknown use, dating generally between the II and IV centuries of the present era. In fact, Dougga may be taken as a typical example of the many Roman cities scattered over Tunis and Algeria. With the loss of Roman control the whole country reverted to its original desert condition and the sand and dust of centuries have covered all but the most mighty works, which still rise unshaken to show the archæologist where excavations may with profit be made.

The majority of the larger towns of Tunis and Algeria occupy the sites of Roman cities, which have furnished such excellent building material, ready hewn, that often every vestige of the ancient constructions has disappeared, and the archæologist can only point to a semicircular depression in the ground as the site of the theater, and picture to himself what other buildings are lost forever from the scanty evidence of inscriptions and architectural fragments, built into the walls of the modern houses. A striking exception to this rule is furnished by the town of Tebessa, the Theveste of the Romans, which lies in Algeria near the eastern frontier and something over 100 mi. from the coast. In spite of the inevitable destruction wrought by its 40,000 inhabitants, it still possesses, almost intact, several important constructions dating from the II and III centuries A. D. Its chief gem is the four-faced arch of Caracalla, not only a beautiful and imposing monument in itself, but almost unique in the history of such constructions. Each of the 4 faces has two pairs of free standing Corinthian columns and many richly carved ornamental details. The whole was once crowned by a lofty cupola of which only fragments remain. Not far from this arch is a graceful little temple which now serves as a museum.

Of far more difficult access are the ruins of Khremissa, situated a little farther westward in Algeria, nearer the coast, and best reached from Guelma on the railway from Tunis to Algiers. From that point a diligence leaving at 6 in the morning takes one southward for 40 miles through some magnificent mountain scenery to Sedrata. There one finds a tiny hotel, with windowless rooms facing the stables, frequented by French commercial travelers and farmers. From Sedrata



THE FORUM AT TIMGAD, ALGERIA



STAGE OF THE THEATER AT DOUGGA, ALGERIA

a poor but possible road leads in something over 12 mi. to the ruins of Khremissa, beautifully situated in a natural amphitheater and commanding extensive views. Aside from 2 or 3 families of poor Arabs, no human being is in evidence, and the sense of desolation is overpowering. Every visitor to Rome knows how real the past appears as he stands in the Forum or on the Palatine, but here in this remote desert with no outside influence to distract the attention, and with ruins covering miles of ground, untouched save by the hand of the excavator, for century on century, the past seems as but yesterday,



ARCH OF CARACALLA, TEBESSA, ALGERIA

and it requires but a slight stretch of the imagination to turn the Arabs with their voluminous garments into toga-clad Romans, re-visiting the scenes but lately deserted. In fact, it requires close inspection of a photograph of the arch at the Forum entrance, to distinguish the Arabs from a draped statue dating from Roman times. The ruins of Khremissa are of the usual type; interesting to the layman from their grandeur and number; interesting to the archæologist from the close adherence to set models, without excluding an infinite variety of finer details.

Two other places in the neighborhood of Guelma repay a visit. A 15 mi. drive and a scramble of half an hour bring one of the ruins of Announa, the Thibilis of the Romans, situated on a lofty plateau with magnificent views. Three arches are in part erect near the long, narrow Forum, otherwise the ruins are very fragmentary. Eight miles northward from Announa is Hammam Meskoutine, with hot spring formations similar to those in our own Yellowstone Park, but



TRIUMPHAL ARCH, TIMGAD, ALGERIA

smaller. Traces of Roman baths show that the value of the waters has long been known. The place is now a famous tourist resort.

The next point of interest following the railroad toward the west is the Cirta of the Romans, now known by the name of Constantine. This stronghold is an excellent example of what havoc continual occupation will make with early remains. Situated on an almost impregnable promontory, it has been besieged more times than any other place in Africa, 80 in all, if tradition be true, from the time of Juba, a few years B. C., to almost the present day. Small wonder,

then, that little remains of the constructions of the early inhabitants. We must content ourselves with admiring its almost unique situation, nearly surrounded by deep gorges and rushing torrents. Along the precipitous cliffs below the town has been constructed a "Chemin des tourists," which clings to the lofty walls, and threads by boldly constructed bridges and passage-ways, the four natural tunnels formed by the river.

From Batna, a few hours by rail south of Constantine, a diligence leaving at 4 in the morning brings one 4 hours later to Timgad, the ancient Thamugadi, passing on the way the ruins of two other ancient towns, Lambæsis and Marcouna. A great deal of money has been spent in excavating at Timgad and the place has been often termed the "African Pompeii," though in reality it is far inferior in interest to the victim of Vesuvius. It must always be borne in mind that the Roman constructions of Africa bear somewhat the same relation to those of Italy that the streets of a modern French provincial town do to a Parisian boulevard. The wonder is that so much was accomplished, far from home, and often with only such workmen as could be found among the legionaries.

Much of the vast stretch of ruins of Timgad is made up of foundation walls of private houses which might as well have been left unexcavated. Nevertheless objects of the greatest interest are not lacking, and the whole effect is certainly imposing. One may still see the streets with their huge traffic-worn paving blocks; the theater with its wedges of seats, those for the magistrates separated from the rest by a stone parapet; the baths, with mosaic flooring and rooms for various temperatures, the caldaria still showing the hollow walls through which the hot air circulated. In the Forum are still to be seen the lines for games scratched by idlers in the pavement. Near by stands the most imposing triumphal arch in all Algeria, spanning the street which leads to the western gate.

Would one see Africa as it is usually pictured, he will do well to go by train southward from Batna, to Biskra, on the edge of the Sahara. In the regions nearer the coast the traveler's comfort during the winter months is often sadly interfered with by cold nights, icy winds, and sudden and violent storms. At Biskra, on the contrary, no rain falls for months at a time, and even the nights are dry and warm. Everything bears a tropical aspect. At 2 mi. from the town one may even visit one of the oases, and see the thousands of palm trees and the village of Vieille Biskra with its queer mud-built houses which seem ready to return to their primitive condition at a touch.

In the center of Biskra the native quarter teems with Arabs, Bedouins, and blacks of the blackest types; all picturesque if not viewed too closely, and living their life in the open air with amused contempt for the wondering tourist, veiled contempt for the most part, for one must not intimidate the goose with the golden egg, and Biskra lives on the stranger.



TRIUMPHAL ARCH AT LAMBERE, ALGERIA

Queer tales are rife regarding these apparently peaceful natives, tales of a cruelty and barbarity only restrained by the closest attention on the part of the French. One who enjoys wandering in remote places has the sorry satisfaction of knowing in advance the death he will meet if a good opportunity offers, for the Arabs are all provided with sharp knives, and the dead are almost invariably found with cut throats. Generally, however, it is the lonely colonist who is attacked and the tourist has little to fear, unless he makes his wealth manifest.

In the evening one should go to one of the cafés where the girls of the Ouled Naïls hold their dances, not so much for the dancing, for that is perfunctory, ungraceful, and vulgar in the extreme, but to observe from a dark corner the café crowded with natives and most picturesque in the dim and flickering light. The guide books make a great point of these dances and every tourist takes them in from a bench reserved for the purpose in the very center of the room. There he sits obviously conscious that every eye is upon him, sipping all the while the excellent coffee for which he pays three times the usual price and never dreams of the risk he runs of catching some dreadful disease from the unwashed cup which some native has just used.

All of this has little to do with Roman Africa, though the outposts in the mountains near by show that the Romans had pushed back the wandering tribes even to that remote point from the coast. And the 700 mi. journey westward through Algiers to Oran, which

one must take if he be en route for Spain, has comparatively little interest to the student of Roman remains. Algiers itself is but another Tunis, somewhat larger, but with many of the same characteristics. The traveler may here visit one of the mosques if he so desires, a thing which is forbidden in Tunis, and feel hopelessly out of place as he wanders about, shoes in hand, without removing his hat. The study of the architecture he will well defer till he reaches Spain.

Fifty miles west of Algiers are the ruins of Tipaza, one of the most important strongholds of the early Christians. It abounds in ruins of their basilicas, with mosaic floors and half destroyed tombs of the martyrs, whose bones the Arab guides push heedlessly about as they search for buried coins.

Oran itself offers but few attractions, and could well be omitted from the traveler's program, were it not on the shortest route to Spain. An added interest was given the place at the time of my visit by the presence of President Loubet on a tour of inspection of Algeria and Tunis. At this time was offered a perhaps unequalled opportunity of seeing the richest and most powerful sheiks of the province, who turned out in great numbers to form a body guard for their president.

C. DENSMORE CURTIS.

Stanford University, California.



PREHISTORIC MAN IN NEBRASKA

IT HAS not been my good fortune to examine the mound yielding this interesting relic which comes to us from the days when the loess hills were made, but had I visited the spot and watched the progress of the work from the start, I could add nothing to the reported conditions, nor could I take anything away from the facts as reported. This is purely a geological question, and Dr. Barbour is eminently qualified to pass upon it.* In fact, I would accept his statement in preference to my own judgment in such matters. The clinching point in the whole matter is embodied in the statement that the human bones were found in *undisturbed Loess soil*. The blocks of soil containing the bits of bone, which he has in the Geological Museum are convincing, and the only argument a skeptic can produce in the matter is the age of this same loess deposit.

Dr. Barbour says: "From a geologist's standpoint there is scarcely a possibility that these bone fragments were ever buried by human hands. Instead, the bones were doubtless deposited with the loess, the age of which may be safely reckoned at 10,000 to 20,000 years or more." This statement is conclusive and to me it is convincing, but

*See RECORDS OF THE PAST, February, 1907.

it will be necessary to meet the objections of those who do not believe man has lived so long upon the earth. Others do not believe that bones will withstand the ravages of so great a time when so near the surface in such a damp and porous soil. Let me say here that all the loess hills in this vicinity have good surface drainage, and the great depth of the same kind of soil insures good under drainage, and that mastodon bones as well preserved have been found as near the surface.

I suggested to Dr. Barbour the possibility that gophers may have worked the bones from the higher to the lower level. I have found buffalo bones 10 ft. deep in gopher holes. It was very difficult to observe the moved loess which filled the hole: as all the hill was the same kind of deposit. But the Doctor assured me that this could not possibly be the case.

There may be a possibility of nature doing over again the work she did ages before; in the same way or in a different way. She may remove one loess hill and from the material form another, either with her hand-maid, the wind, or her old servant, the water, and there is a possibility that Dame Nature is still building these self-same loess hills in the same manner that she originally constructed them—in fact, some eminent geologists advocate the theory that the loess hills are now in process of construction through the agency of the wind—that the loess hills are still being made, not by erosion, but by the agency of wind. This is probably the strongest argument that can be produced against the Nebraska Loess Man; if it can be shown that the loess hills when bare of vegetation were shifted by the wind, then these bones may have been covered to a depth of even 8 ft. by the drifting of the loess soil, but heavy fossils and bits of bone having the weight of a skull could scarcely be distributed throughout the wind-shifted loess. If nature is still building the hill bit by bit the bones would have been found nearly on a level. Viewing the specimens and accepting the conditions of their finding as reported, there seems no doubt but this man “antedates the hill itself.”

If this Nebraska Loess Man is from glacial days, he doubtless had associates—he certainly had ancestors—and time will add other evidences to those already recorded, and the sum total will add a new chapter to man's origin. This time and place is fitting to enumerate the bits of evidence which have been gathered in the past few years pointing to human occupancy during the glacial era, or before it in Nebraska and the West. In my notes I have 4 items besides the “Lansing skull,” which was discussed so exhaustively a few years ago.

1. Along the banks of a canyon skirting “Lost Dog Creek,” not far from the northern boundary of Nebraska, Mr. Sheldon, of the Nebraska State Historical Society, found remains of a man buried under 10 ft. of loess soil. He says the general contour of the surface indicates that this region was an ancient lake bed, as the soil shows stratification and contains the fossils and shells found in loess deposits. The fire-places found along this bluff contained ashes, charcoal, dis-

colored rocks and other evidences of fire; the line which once marked the surface of the valley is plainly defined 10 ft. below the present level, and a number of these fire-places were found which certainly were in ruins before the loess was deposited. In one of these fire-places was found a perfect arrow point, showing considerable skill in the making, and a number of shreds of rude pottery. These relics may be seen in the Nebraska State Historical Museum in a vertical section of soil from the spot. It will take the evidence of a geologist to determine the time when this particular loess was deposited, but Mr. Sheldon thinks there is no possibility of the surface having been covered by wash soil; he thinks the loess is an original deposit. This discovery alone may prove little or nothing because of the possibility of an accident in nature or a mistake in judgment; but taken with other evidences it proves helpful in reaching a true conclusion.

2. A limestone spear was found on the side of a hill where the drift pebbles were abundant. This hill overlooks the Missouri River and is not far from where the Nebraska Loess Man was found. A careful study of this spear convinced me that it was not made or used by Indians. It differs in form, material, and size from any implement which I have seen. It is 14 in. long and 3 in. broad, is made of limestone and polished, and is coated with a deposit of lime similar to many drift pebbles in the vicinity. A study of this lime deposit convinces me that it was made on the pebbles before they were deposited by the drift. Is it possible that this spear was the weapon of the Nebraska Loess Man?

3. About a mile from where the water-worn and scattered bones of the Loess Man were found, was unearthed a very interesting implement. It is leaf shaped, about 7 in. long and half as wide; it has notches at the base; is very perfect in workmanship, and made from agate found in petrified wood. The original color is a cider brown, and one side still shows this color, but the reverse is eroded to a milky white. It will require the evidence of specialists to determine how long it will take to erode this agatized wood to the condition of this spear.

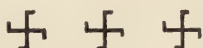
4. Last but not least of the tangling problems which confront this department in its search for truth is the boulder which the class of 1892 placed on the Nebraska State University campus. This granite drift boulder weighs several tons and was brought here from near Hartington, Cedar County, Nebraska. Upon the top of the boulder is cut the imprint of a left foot, and the whole top of the rock is covered with characters of various kinds, worn into the rock to a depth of half an inch. During the summer of 1906 I visited the home of this rock and found the depression in the top of the hill from which it was taken. The surrounding surface is still undisturbed, but I failed to find evidences of Indian occupancy within 8 mi. of this spot. It is over a mile to running water, and there is nothing to show that the

labor of making these characters had been done there. Is it possible that this boulder had been engraved before it was brought in the drift?

I have but briefly mentioned the conditions which are found here. Space will not permit me to show each step which led up to the conclusions which we are bound to reach in the matter. There are certainly a few conditions which lead us to believe that man occupied Nebraska before the loess was deposited. As the exploration goes on other evidences will be found if this is true, and even the most skeptical will be convinced.

E. E. BLACKMAN.

Lincoln, Nebr.



MOUND BUILDERS OF THE MISSISSIPPI VALLEY

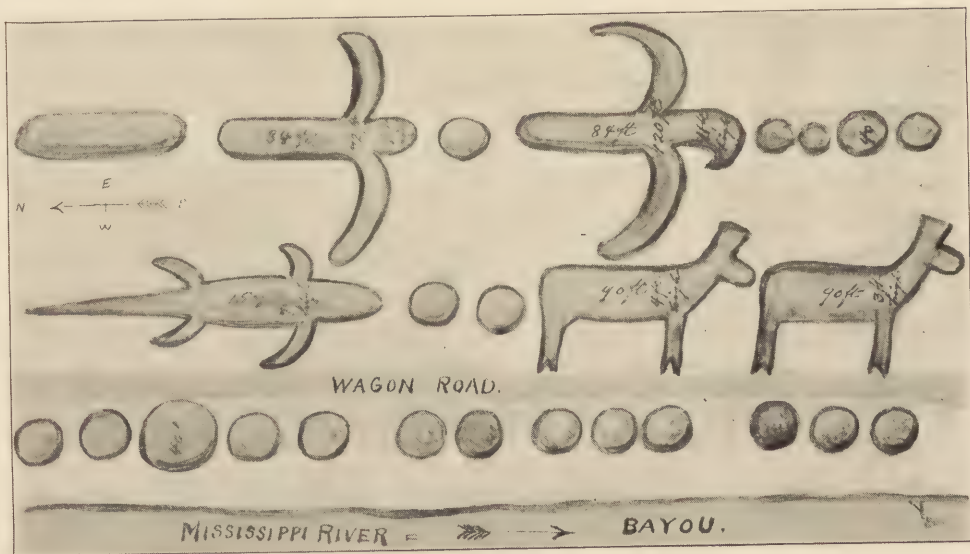
BATTLE MOUND

NEXT in importance to the individual or family burial mounds come the war or battle mounds. One of these is situated in Jo Daviess County, Illinois, near the Menominee Creek, a few miles this side of Galena; it is situated on the top of a hill. In this mound, which is a very large one, were buried a great number of warriors, lying in heaps, and in the greatest confusion. I have in my collection a large number of skulls and bones from this mound; some of the skulls are of the flat-head type, and others of the types of the Sioux and of the Copper country Indians. They were dug up by Dr. L. F. Hanks and Al. Pizer of this city. After the above-mentioned gentlemen had dug out of this mound everything, as they thought, Mr. Alexander, one of the teachers at the Dubuque High School, and Mr. Frank Zehetner, of this city, excavated down deeper in the same mound, and found a great many more skeletons, some of the skulls I saw at the time. One in particular attracted my attention, in that it had a wedge-shaped copper tomahawk driven in and protruding through to the inside of the skull. Everything in connection with this mound indicates that at some time in the remote past, a fierce battle was fought near this spot, probably between the Indians occupying this part of the country and the Indians of the Copper country.

INDIAN CREMATION

Mr. Allen and Frank Zehetner were attracted to a mound near this, in that on the top of the mound, the clay and earth was burnt red and looked very similar to a brickyard dump. In digging away the burnt

clay they came upon two parallel walls made out of baked clay, similar to brick, only larger and coarser. Between these had evidently been laid the body of an Indian and the intervening space all around the body filled with mud to the level of the top of the walls, and then a fire built and the whole burnt to the hardness of brick. These two gentlemen came to the conclusion that this Indian must have been some renowned personage from the Copper country who fell in that battle and was cremated in this manner, because the outline of the shape of the entire person, of large size and splendid proportion, was plainly visible lying between the two walls in the baked mud. There was but very little of the bone structure left, as the cremation seems to have been perfect; but the excavators found a large, well-formed copper spearhead, a wedge-shaped piece of copper, which no doubt had been used as a tomahawk, and a copper breast plate. These articles were hammered into shape and the breast plate or gorget had two eyelets for the cord to pass through by which it was suspended from the neck and worn on the breast of the owner.



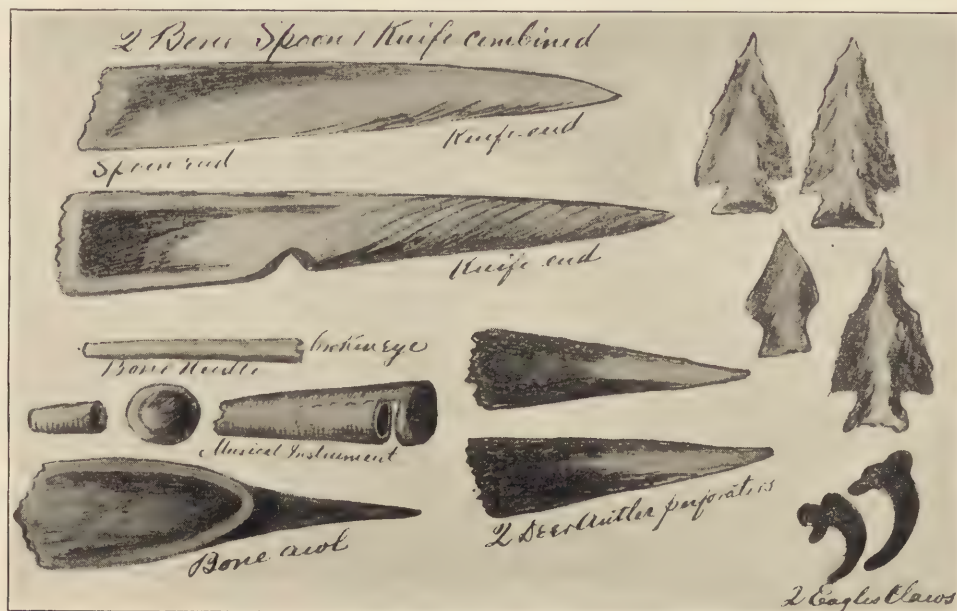
WAR OR BATTLE-MOUNDS NEAR CASSVILLE, WIS.

TRIBAL OR NATIONAL MOUNDS

Of still greater importance and magnitude were the Tribal or National Mounds, or, as they are generally called, the effigy mounds, which bear the nearest affinity to our national monuments. When I look at the pictures of the many effigy mounds found hereabouts, and look at the hieroglyphic writings of the Indians, which bear a great resemblance to each other, it strikes me as being the largest and most enduring thing they left to record their having lived here, and that



COPPER GORGET OR BREAST PLATE [UPPER FIG.]
COPPER TOMAHAWK [LOWER FIG.] FROM MOUND NEAR MENOMONEE,
JO DAVIESS CO., ILLS.



IMPLEMENTS FROM MOUND NEAR GARNER, WIS.

in the majority of cases they represent the name or achievements of the tribe or nation that built them, such as the "Elephants," Mastodon, or Mammoth; Blackhawk, "Crows," Foxes, Otters, Beavers, Alligators, Standing Elk, Moose, etc., or to commemorate some great event in their history, victory won, or to perpetuate the remembrance of those fallen in battle.

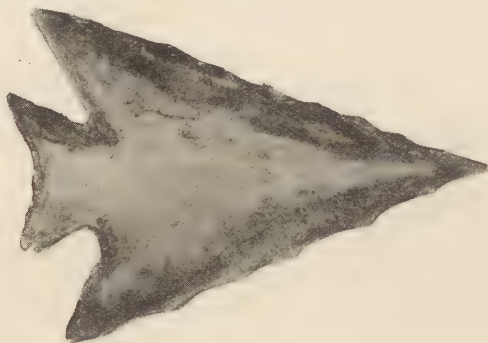
For instance there are the effigy mounds in the gravel pit just this side of Cassville, Wisconsin, where a battle was fought near Cassville Island, and these effigy mounds evidently were placed there to commemorate the event, described by Mr. Lucius W. Langworthy as follows: "In 1830, a war between the Indians themselves began with all the horrors of savage barbarity. Some 10 or 12 Sacs and Fox Chiefs, with their party were going to Prairie Du Chien from Dubuque, or rather from the 'Little Fox Village' as it was then called, as delegates to attend the Treaty conference to be held there by United States Commissioners. But when at Cassville Island, in their canoes, they were attacked by a large war party of Sioux and literally cut to pieces. Only two of all their number escaped, one being wounded, never reached home, and the other being shot through the body lived only to tell of the disaster. He arrived in their village, after swimming streams, hiding and skulking along, and starving with hunger, in time to die among his kindred and friends.

"The tribe now in great alarm and confusion left the place and graves of their fathers, most of them never to return, and thus, these mines, and this beautiful country was left vacant and open to settlement; for previously the Indians would allow no one to intrude upon their lands."

Thus I am lead to believe that most of the effigy mounds represent similar events of tribal or national importance; and that we in setting national or state monuments on the battlefields to indicate where our soldiers fell, are perpetuating that custom, only a step removed from that of the children of nature, the mound builders of the Mississippi Valley.

RICHARD HERRMANN.

Dubuque, Iowa.



COPPER SPEARHEAD

THE DEVELOPMENT OF THE SYSTEM OF BOUNDARY FORTIFICATIONS IN BRITAIN AND GERMANY, UNDER THE ROMAN EMPIRE

PART III

THE FRONTIER FORTS

WE HAVE traced the development of the Roman boundary defenses in Britain and Germany during the period in which there was constant progress in strength and efficiency; we may now inquire what arrangements were made to provide for the shelter and security of the soldiers who were stationed along the frontier.

At all periods of their history the Romans were accustomed in time of war to erect fortified camps whenever an army made a halt, if even for a single night. The arrangement of these camps is described by Polybius in his sixth book and by Hyginus in a special treatise.²⁷ The necessity of providing fortifications for permanent garrisons did not arise until toward the close of the republican period; with standing armies came the permanent fortified legionary camps. Later, when levies from the subject peoples were organized as cohorts and *alæ*, the smaller camps known as *castella* (best translated "forts") were erected. The fortified camps along the frontier boundary belong to the latter class.

The *castella* had the form of a rectangle, usually more or less elongated, with rounded corners. In the earliest period their defenses consisted usually of stockades with earth ramparts. In the later periods came a transition from earthworks to stone walls. The fortifications were reënforced on the outside by one or more ditches. In Germany and England no *castella* are known that had more than 2 ditches; but in Scotland the number was sometimes as high as 5 or 6.

The areas enclosed by the defenses of these forts varied in extent according to the numerical strength of their garrisons. Six of the separate fortified camps along the line of the boundary in Germany or in its vicinity are far larger in area than all the others. Of these the fortress of Kesselstadt, with an area of $34\frac{3}{4}$ acres (140,625 sq. meters) was probably intended as a legionary camp and seems to have been occupied for only a short time. The 5 others, Aalen, Okarben, Echzell, Heidenheim, and Niederbieber, which vary in size from 15 to 12.6 acres (61,000 to 51,000 sq. meters) approximately, were

²⁷*Liber de munitionibus castrorum.*

intended for alæ of 1,000 men. Aside from these the castella in Germany may be divided with respect to their extent into 3 classes: The largest of these contains 31 forts, varying in area from $10\frac{1}{2}$ acres (42,748 sq. meters) to about 4.9 acres (20,000 sq. meters). The second class extends from 4.93 acres (19,980 sq. meters) down to about $2\frac{1}{2}$ acres (10,000 sq. meters) and contains 8 forts. The third class embraces 15 forts, which vary in area from 2.4 acres (9,775 sq. meters) to 1.2 acres (4,900 sq. meters). Those excavated in Scotland (so far as the results of the excavations have been published) vary in size from 28,800 to 17,672 sq. yards (5.9 to 3.6 acres). But several of the Scotch forts are provided with adjoining secondary stations and fortified annexes which greatly increase their protected area. Most of those in England contain between 5 and 3 acres or 24,200 and 14,520 sq. yards.²⁸



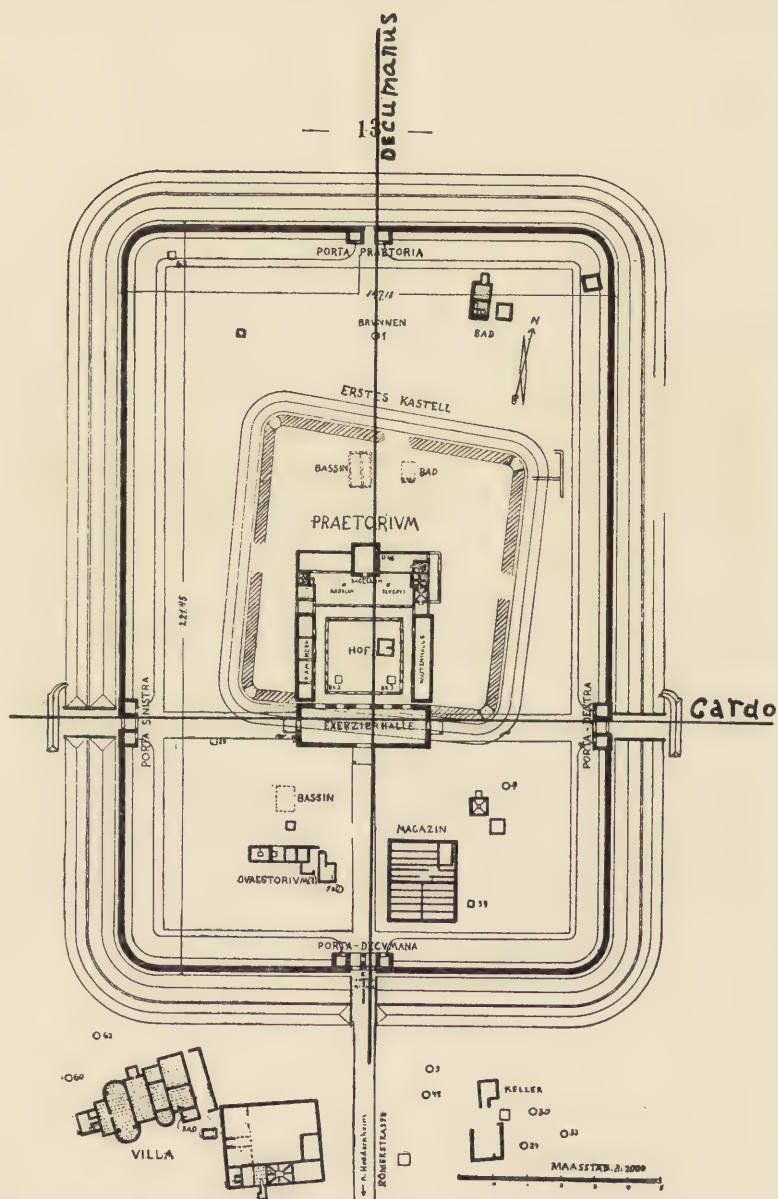
A CORNER OF THE SAALBURG, SHOWING THE TWO DITCHES

The *cardo* ("base line") and *decumanus* ("axis" or "decuman") were the imaginary guiding lines for the plotting and interior division of the forts.²⁹ The decuman always divided the castellum into equal parts. Its course was usually parallel with the long sides of the inclosure, and midway between. The camps at Castlecary and Camelon in Scotland, however, are exceptions; in these two it runs in a direction parallel to the short sides. The decuman regularly bisects a central building, of which we shall have occasion to speak later.

The *cardo* crossed the *decuman* at right angles, but usually not at the center of the camp. Its position was usually such as to divide the camp into parts containing respectively, 2-3 and 1-3 of the entire

²⁸Bruce, *op. cit.*, page 24.

²⁹The following description is illustrated in *lower cut*, p. 52, of the February issue.



PLAN OF THE SAALBURG, 10 MILES NORTH OF HEDDERNHEIM, GERMANY

area. A main road crossed the camp on the line of the *cardo*. Other roads connected the central building with the shorter sides of the *castellum*, their direction coinciding with the course of the *decuman*. One of the short sides bisected by the *decuman* was looked upon as the front of the fortress. This was usually the side nearest the enemy. But several Scotch and one English *castellum*, Housesteads (Bor-covicus), do not present to the enemy one of the sides bisected by the *decuman*. In these instances other considerations peculiar to each location determined the direction of the front.

It is doubtful to what extent we are justified in applying to the parts of the *castellum* the names of the corresponding parts of the temporary camps. Yet this practice has been found convenient and in some instances, at least, is clearly appropriate. The *castellum* had usually 4 gates, one on each side.³⁰ There is evidence to prove that



SOUTH GATE (PORTA DECUMANA) OF THE SAALBURG, GERMANY

the gate in the front side of the fort was called *porta praetoria*, the same name by which the corresponding opening in the temporary camps was designated.³¹ It is reasonable to suppose that the same names were adopted for the 3 remaining gates. The *porta decumana* then, would be the gate opposite the *porta praetoria*, at the point where the *decuman* cut the face of the camp furthest removed from the enemy. The *portae principales* opened in the other sides of the *castellum*, distinguished as *dextra* or *sinistra*, according as they were to the right or left of a person standing at the *porta decumana* and facing the interior of the fort. The *via principalis* was the street crossing the *castellum* on the line of the *cardo*. The *decuman* road (*via decumana*) connected the *porta decumana* with

³⁰The larger *castella* on the Solway-Tyne line in England have 6 gates, as has been noted, and are an exception to the general rule.

³¹Tac. Hist. IV, 30: C.I.F. III, 7450.

the central building. The *via praetoria* connected the same central building with the *porta praetoria*. The *via principalis* was usually nearer the front than the rear of the castellum.

The central building, to which reference has already been made, was the administrative center of the camp. It consisted of series of rooms grouped around one or two open courts. Its location was usually such that the margin of the *via principalis* was in alignment with one of its sides, while the *via decumana*, representing the course of the decuman, would, if extended, divide it into equal parts. The name *praetorium*, which designated the commander's tent in the temporary camps, has usually been applied to the central building of the permanent forts. But this usage is probably inaccurate. The central building was not intended as a residence, for the commanders of forts were lodged in villas outside the walls. There is reason to believe



SOUTH GATE OF THE SAALBURG WITH FLANKING TOWERS. THE CENTRAL BUILDING (PRAETORIUM) IS SEEN THROUGH THE PORTALS

that either a part or the whole of the central building was called the *principia*.

The Saalburg represents the type of cohort "castella" found in the later period on the line of the German frontier. This fort, the ancient name of which is unknown, is situated in a depression of the Taunus range, which forms a natural pass connecting the valley of the Main with that of the Lahn, at an altitude of 1,384½ ft. (422 meters) above the sea. The castellum lies 240.6 yds. (220 meters) south of the "Pfahlgraben" and about 10 miles north of Heddernheim, the site of the civitas Taunensium, the ancient urban center of the plain.

The dimensions of the Saalburg are 150 by 100 Roman *passus*, equivalent to 750 by 500 Roman ft., or 726½ by 484.3 ft. (221.45 by

147.18 meters). The present form dates from restorations carried out in the early part of the III century A. D. But the whole fort has, in recent years, been undergoing a process of reconstruction so as to present, as nearly as possible, the same appearance that it did during the latest period of Roman occupation. The rebuilding of the walls, towers, *horreum*, and central building were carried out in pursuance of an order of the Emperor William II, issued in 1897.

The stone wall of enclosure is 15.7 ft. (4.80 meters) high and 6.3 ft. (1.92 meters) thick. It is backed by a mound of earth, the top of which, at an elevation of 7.2 ft. (2.20 meters), served as a platform for the defenders. On the inner side the mound slopes down from the level of the platform to that of the interior of the camp. Above the platform the walls are constructed so as to form battlements, through the openings in which the soldiers could hurl their pikes at an approaching enemy. There were approximately 400 of these openings and as the garrison of the fort was a *cohors quingenaria* (*cohors II Raetorum civium Romanorum*), consisting of 500 men, it will be seen that the number was insufficient to withstand a serious attack by a superior force. For if a man were assigned to each opening, adequate provision could not have been made for relieving those who were wounded or exhausted.

The Saalburg is surrounded by 2 ditches. The 4 gates, one in each of the 4 sides, are flanked by square towers 2 stories in height. The decuman gate alone has a double entrance. The *via principalis* crosses the fort at a distance from the rear wall corresponding to 1-3 the length of the decuman. It was, therefore, nearer the decuman than the *prætorium* gate.

The central building occupies an area of 131.2 by 196.8 ft. (40 by 60 meters). A large covered hall extends across its southern front, built over the line of the *via principalis*. It was probably the basilica, used as an assembly hall and room for exercise in bad weather. The central building contained 2 rectangular courts, corresponding in their relative position with the atrium and peristyle of a Roman house. Five doors open from the basilica into the covered portico surrounding the first of these 2 courts. On the east side of this court there is a long, narrow room supposed to have served as the *armamentarium* or armory. The corresponding space on the west side of the court is occupied by 4 small rooms, the purpose of which is not known. The court contains a small shrine and 2 wells.

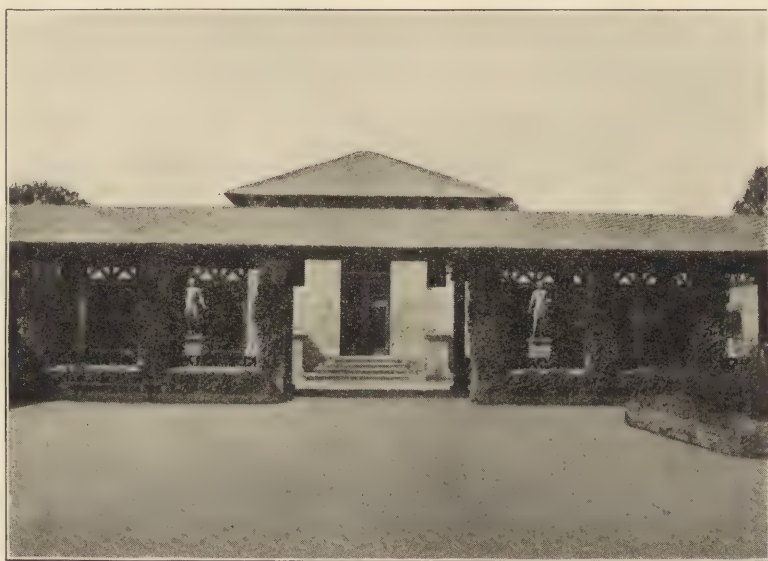
One passes the portico at the rear of the first court to enter the inner one. At the rear of this second court was the shrine (*sacellum*) where the standards and statues of the military divinities were preserved. The spaces on both sides of this were occupied by porticoes where statues and altars of the deified emperors were erected. On the east and west sides of the court were small chambers heated by hypocausts. One of these was probably intended as an *excubitorium*, or room for the soldiers on guard before the shrine. Others may have

been occupied by the *tabularium* or account and record office of the camp.

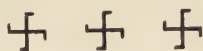
Southwest of the Saalburg are extensive remains of a villa containing several large halls and smaller side rooms. This building was provided with heating arrangements and a bath. It was probably the residence of the commander of the fort and garrison, the prefect of the cohort. The ruined walls of the villa rise in places to a height of a little over 6 ft. (2 meters).

GEORGE H. ALLEN.

University of Cincinnati.



THE PORTICO BETWEEN THE TWO COURTS IN THE SAALBURG WITH THE SHRINE IN THE INNER COURT



PALESTINE EXPLORATION FUND

THE long wait for the new permit to excavate will probably be over before this is read, because Mr. Macalister is known to have left Constantinople for his field of work. Nothing is more mysterious in the present archæological situation than these long delays when men and money are ready and the Christian world is eager for the work. One said lately that no extensive and thorough work, such as would induce Americans to contribute largely, can be done while permits have so limited a duration that, as soon as the work is well under way but not near completion, it must be stopped. Patience is not characteristic of Americans, but fortunately Englishmen do have it in large measure.

But besides the specific work awaiting Mr. Macalister, he is exploring a large cave just inside of St. Stephen's Gate at Jerusalem, and is studying 3 Greek inscriptions, lately found near the spot where Stephen is said to have been stoned, which refer to that event and the church once standing there.

An interesting discovery has been made by the Germans at Ashur. They have found a black marble bead on which is an inscription stating that Shalmanezzer brought it from the temple at Mebaha, the residence of Hazael of Damascus. Hazael is well known to us from his assassination of his royal master and his wars with Israel. It was Shalmanezzer II who conquered him, and not Shalmanezzer IV who besieged Samaria, as is told in 2 Kings XVII. But the inscription is very valuable because it names a Bible person, the king of Damascus for over 40 years.

The volume issued by the Egypt Research Account on "Hyksos and Israelite Cities," describes Prof. Flinders Petrie's good work at Tell-el-Gehudich and shows that he has found not only Raamses, the store city built by Israel, but the temple which Onias built for the Jews when they fled to Egypt in large numbers to escape the persecutions of Antiochus Epiphanes. This temple, by the way, had half the floor dimensions of that of Solomon and so was of the size of Zerubbabel's and thus of the tabernacle of Moses. There would seem, therefore, to have been 3 structures which were half the size of the temples of Solomon and Herod. Herod's temple was much broader in its front and higher than Solomon's, but it seems to have had the same inside measurements.

A tomb has been found near Mount Carmel bearing on its lintel the name "Manaemos." This is the Greek equivalent of "Menahem" and possibly means the King of Israel (2 Kings, XV), but more probably a later man bearing that name, perhaps the leader of the Jewish revolt described by Josephus in his *Jewish Wars*.

Looking forward hopefully to Mr. Macalister's new work I shall be glad to extend the list of subscribers, who will receive the illustrated *Quarterly*.

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EDITORIAL NOTES

INDIAN VILLAGE SITE NEAR ALAMOGORDO, N. M.—The discovery of what was undoubtedly once a great Indian camp is reported from Alamogordo, N. M. The village site is on a high elevation. Thousands of pieces of pottery, as well as many arrowheads were strewn around. Stone axes, round rocks or "bull killers" and many other stone implements are plentiful.

ANCIENT CHINESE VASE.—According to reports, a Chinese vase, known as Black Hawthorne, recently sold for \$5,000. It was believed to be more than 1,000 years old, and was once one of the art treasures of their loyal palace at Peking. It is entirely black, with only slight decoration of the Wai Tai design.

BETTER ACCESS TO CERTAIN OF THE CLIFF DWELLINGS.—“Now that a wagon bridge has been built across the river [Rio Grande] at Buckman, the lumber camp of the Ramon Land and Lumber Co., it will be much easier to reach the cliff dwellings in that section than heretofore.” [*New Mexican*, Santa Fe, N. M.]

RUINS AT FORMIÆ.—If reports are correct, it is an interesting discovery that has been made at Formiæ in Italy. On a hill dominating both the Appian and the Herculaneum ways are some ruins thought to constitute the tomb of Cicero, who was assassinated near that spot.

BAS-RELIEFS FOUND AT YOZGHAT.—Bas-reliefs which, with their inscriptions, are said to throw light on the civilization of ancient Babylon are reported to have been found at Yozghat in Asia Minor, where excavations are being carried on under the direction of Macridi Bey, of the Imperial Ottoman Museum at Constantinople, and Dr. Hugo Winkler, of the University of Berlin. According to Mr. Pinches the tablet as found is only about one-fourth of the original. It is 6 by $4\frac{1}{8}$ in. and contains 94 lines of writing on the two sides. The text is divided into 18 paragraphs. The date assigned is 1400 B. C. The language is similar to that in the letters from Arzawa in the Tel-el-Amarna tablets. If, as is conjectured, it is in the Aryan language it is the oldest example of Indo-Germanic. Prof. Sayce thinks it is Hittite and has attempted a translation. It appears to be a letter from one prince to another, mentioning a man named Hahhimas, forests, gardens, the marriage of his daughter, together with certain deities, and their priests and priestesses.

ARCHÆOLOGICAL TREASURES FOUND IN CENTRAL ASIA.—The discovery in Central Asia by Dr. Von Lecoq of some interesting ancient paintings and manuscripts is reported from Bombay. The paintings are upon stucco with gold leaf background, resembling Italian work. The manuscripts are in 10 different languages, one of them entirely unknown.

GREEK PAPYRI.—Dr. Grenfell reports the discovery during 1906 of a number of Greek papyri at Oxyrhynchus. These include “some new *Odes* of Pindar, parts of the lost tragedy of Euripides on Hypsipyle, parts of a new Greek Historian, and of a commentary on the second book of Thucydides, the second half of the *Symposium*

and portions of two manuscripts of the *Phædrus* of Plato, of the *Panegyricus* of Isocrates and the speech of Demosthenes against *Bœotus*."

SECRET SOCIETY OF "SEYMOS."—"M. A. Chevrier has accompanied the presentation to the Museum of the Trocadero [Paris] of a musical instrument from the west coast of Africa (the French Guinea Coast) with some notes on the customs of the adepts of the secret society of the 'Seymos,' a system of fetichism prevailing among the natives. He considers that their observances indicate a higher mental condition than that of the existing Negro races, and are the survival of a more advanced social and intellectual era, from which these have degenerated."

GIFT OF COINS TO THE BRITISH MUSEUM.—Dr. F. Parkes Weber has just given a remarkable numismatic collection to the British Museum. From his entire collection the trustees were given permission to select everything they wished. Accordingly, they took 5,551 pieces. These range in date from early Greek and Christian to modern times. The chief treasures are two fine leaden medals by Vittore Pisano and a unique portrait of Paracelsus. "Among the curiosities of the collection may be reckoned sections illustrating token coinage, primitive forms of currency, the technical processes of die-engraving and methods of forgery."

NEOLITHIC IMPLEMENTS IN HAMPSHIRE, ENGLAND.—Mr. W. Dale says that the County of Hampshire, England, has yielded him Neolithic implements of almost every kind—roughly chipped celts, carefully chipped celts, celts partly polished, celts entirely polished. He thinks the simple flake, the scraper and roughly chipped celt were the most common implements of Neolithic man. He does not believe Neolithic man used implements for tilling the soil, or that he knew and cultivated cereals in Britain. He is of the opinion that there was a distinct physical break between the periods in which Palæolithic and Neolithic man lived.

JAR-HANDLES FROM GEZER.—The examination of jar-handles found in the mound at Gezer has explained one of the genealogies given in the Book of Chronicles, and has shown it to be a real genealogy. Each handle bore the name of the maker, a scarab and the inscription, "For the king." The names, except for some minor differences due to copying, correspond with the names of potters recorded in 1 Chron., IV, 16-23. This family of potters, descendants of Caleb, long inhabited a region south of Hebron. During the reign of Joash they enjoyed the patronage of the King of Judah. Later they were forced to seek another home south of Moab, whence they eventually returned to settle in Bethlehem.

PART OF A NEW GOSPEL FOUND AT BEHNESA.—“The most important find of the year [Egypt Exploration fund] from the point of view of Christian archaeology, is undoubtedly that, by Drs. Grenfell and Hunt, of a vellum leaf containing 45 lines of a hitherto unknown Gospel. It describes a visit of Jesus to the Temple and his dispute with a Pharisee there on the failure of Jesus and His disciples to perform the ordinary ritual of purification. It not only describes these ceremonies at length, but also shows a much greater mastery of the Greek language than displayed in the Synoptics; and it is said to be both picturesque and vigorous in its phraseology. It is not yet decided whether it will be published separately or will go into Drs. Grenfell and Hunt’s annual volume.” [*Athenaeum*, London.]

EXCAVATING HERCULANEUM.—There has been much talk recently of making more extended excavations at Herculaneum. The difficulties of the proposed work are great, owing to the fact that the city was buried by volcanic material which has hardened, not by volcanic ash as was the case with Pompeii. But the results will, in all probability, be correspondingly of greater value, if we may judge from what little has been found already. The remarkable Greek and Greco-Roman bronzes in the Naples Museum came from a single villa in Herculaneum. Scraps of wall painting that give a hint of the dignity of Grecian painting were found there. While no manuscripts have been found in Pompeii, a large medical and scientific library has been discovered in Herculaneum.

EGYPTIAN MEDICINE.—There is much evidence in inscriptions and manuscripts that the ancient Egyptians practised medicine and surgery extensively. Probably their practice was based on little knowledge of anatomy. Each physician treated only one or two diseases. The sick were exposed in public places so that others who had suffered similarly might tell them of helpful remedies. Diseases of the eye were best understood and received both medical and surgical treatment. The most important medical manuscript found in Egypt is the Papyrus Ebers, written 3000 B. C., and discovered in Memphis. Disease, according to the Egyptians, was due to the anger of some deity, the result of the triumph of evil in its struggle with good—an idea which is still very general throughout Africa and Asia, and which at some time has been prevalent in modified forms, in almost every race.

ANCIENT TEMPLE AT THEBES.—A notable find, “considered by many the greatest of the year (1906) was made in a temple believed to be the oldest at Thebes, which has just been excavated. It is a natural-sized Hathor cow, cut out of sandstone and painted, in a perfect state of preservation. This is the first time on record that a shrine containing a god or goddess has been met with intact.

A message was at once sent to Cairo, and soldiers were sent to guard it; but before they arrived Mr. Currelly, who was engaged in the work, sat up all night with the charge to protect her from harm. The shrine was built of sandstone blocks, covered with stucco, and elaborately painted and sculptured with the pictures of Thothmes and Merit Ra and the cow of Hathor. The whole shrine was taken down and carefully transported, together with the cow, to Cairo, where it has been rebuilt in the Cairo Museum. Experts declare this to be the finest specimen of Egyptian animal sculpture yet found." [*The Church Standard*.]

ANGLO-SAXON CEMETERY.—An extensive Anglo-Saxon cemetery has been discovered in Ipswich, England. One hundred and thirty-five graves have been examined already and the work is still continuing. Among the relics found were "spear-heads, knives, and other objects of iron and bronze; some rare fibulæ; a silver ring-necklace with amber bead, said to be unique, and a large Frankish buckle, beside numerous necklaces of beads." A number of urns of rough construction were found, either in the graves or buried separately. One coin of Marcus Aurelius, A. D. 161, was found in a woman's grave. Only one case of cremation has appeared thus far in the cemetery. The vases were plain and not the kind usually used as cineraries. The heads were in a uniform direction, southwest. Swords and long brooches of Norwegian type were absent as well as bracelet-clasps, Roman and Saxon coins. "The square-headed brooches formed a remarkable series and their ornamentation confirmed the opinion that the burials did not extend over a long period."

FINDS AT OLYMPIA.—According to newspaper reports, Dr. Dörpfeld has recently been carrying on excavations on the site of Olympia in the Peloponnesus. His work has been in the Cella and Opisthodomos of the Temple of Hera, and in the Sanctuary of Pelops. Under the floor of the Heræum he found objects of later date than the temple, showing that the floor had been relaid. According to report, one of the most remarkable finds is a lion's claw with a small human foot in a pointed shoe standing upon it. As this is of the same material as that from which the large head of Hera, found previously near by, is carved, it is thought that this may have formed part of the footstool of a seated figure of the goddess. Lower down were discovered in a "black earth layer," fragments of pottery, bronzes, and terra cotta figures. Among the bronzes two figures of animals, a bowl and particularly a 9 in. high statuette, which undoubtedly belongs to a period previous to the building of the temple, and which is classed in the geometrical style, may be mentioned. There is nothing remarkable about the pottery fragments.

EGYPTIAN RELICS AT JOHNS HOPKINS UNIVERSITY.—A despatch in the *Washington Herald* from Baltimore says

that due to the influence of James T. Dennis, John Hopkins University has recently come into possession of a collection of antiquities found at Deir-el-Bahari, the burial field of ancient Thebes. The relics were found on the site of the Temple of Hathor, the Mortuary temple of King Mentuhoten II, 2176 to 2130 B. C. The most interesting of these objects now in Baltimore is a block of limestone about 3 ft. long on which is a relief of a crocodile with a fish in its mouth. This was part of the decoration of the south colonnade of the temple. There is also a fragment of stone with an incised hieroglyph of unusual size. The pottery in the collection comprises 31 earthenware vessels of various sizes and shapes, with some fragments of blue glazed faience. The pieces are in a good state of preservation, and include wine bottles, water jars, large pots for cooking, drinking cups, and libation bowls. Two of the jars show spiral decorations characteristic of Mycenaean pottery. A tool and fragments which seem to be mementoes of the workmen who partially demolished the temple about 1100 B. C. were found.

ROMAN POTTERY IN THE THAMES.—Tradition tells of the wreck of a vessel laden with "Samian ware" on Pudding-pan Rock, a shoal in the Thames estuary. A number of such bowls have been dredged from the Rock. These discoveries drew attention as long ago as 1778. Recent investigations demolished the theory that the ware was manufactured on the spot, for no wasters or handbricks, no moulds or potter's stamps have been recovered from the Rock. Some of the potters whose names are on the ware are known to have worked at Lezoux in the II century A. D. One hundred and sixty-seven specimens from the shoal have been examined recently. There are 14 shapes, representing the work of 30 potters. The bulk of the ware is unornamented except for ivy leaves in slip on some of the rims. It is fine red with coralline glaze. One two-handled vase of an entirely different ware is among the specimens, and also a specimen of "Tuscan" ware. The paste is pale brown with black surface of fine quality. A bowl of one of the Rock types but with a strange potter's name has been found in Norfolk. It contained coins that were deposited in 175 A. D. "The name of the Rock is due to the Whitstable custom of serving the 'pudding-pie' in these vessels on Ash Wednesday, and the association of 14 strictly contemporaneous forms from the wreck will be of service in dating Romano-British remains."

REPORT OF THE PEABODY MUSEUM OF HARVARD UNIVERSITY.—The fortieth report of the Peabody Museum of American Archaeology and Anthropology by F. W. Putnam is just at hand. Field work is being carried on under the direction of the Museum, in Central America, which has furnished much valuable material for the study of the physical characteristics, arts, culture,

and hieroglyphic writing of the ancient inhabitants. Mr. Edward H. Thompson has sent a number of molds of interesting sculptures at Chichen Itza. Mr. Maler has made an extensive report, soon to be published with illustrations.

During the summer, Mr. M. R. Harrington conducted the fourth annual expedition to western New York, where an ancient Iriquois site was explored. A good collection of implements, ornaments, pottery, and skeletons was made, including some new forms and rare types.

"During the summer of 1906 Mr. Ernest Volk continued his researches for the Museum in the glacial deposits near Trenton, N. J., in connection with my [F. W. Putnam] long-continued study of the antiquity of man in the Delaware valley. Several palæolithic implements were found, and additional geological facts were obtained in confirmation of the antiquity of man in the valley."

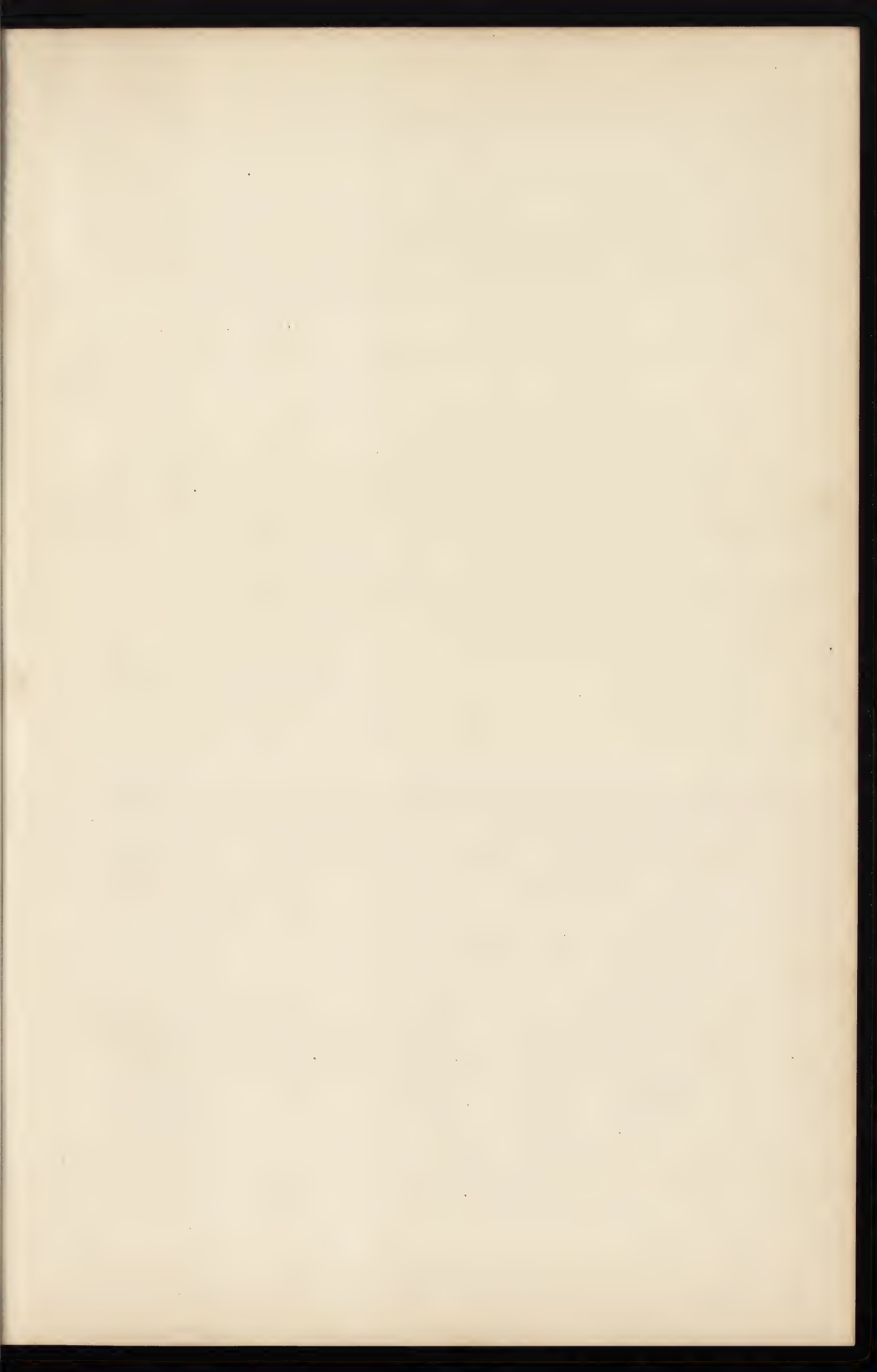
An expedition to South America under the auspices of the Museum with Dr. W. C. Farabee as director was organized to start in December, 1906. Arequipa, Peru, will be the field headquarters. The purpose is to study the native peoples of the Eastern Andean region of Peru, Brazil, Bolivia and Argentina. The expedition is to last three years. A phonograph is to be used in the study.

Other investigations are being carried on at Mandan, North Dakota, by G. F. Will, H. J. Spinden, and Dr. Roland B. Dixon; among the Indians of California by Dr. Dixon, and among the prehistoric earthworks in the Ohio valley, especially the Bryson Mound, by Dr. Farabee.

In the Museum itself work has gone on in the identification and labeling of collections from the Pacific Islands and from American Indian tribes. Several models representing the dwellings and customs of North American Indians have been constructed under careful supervision.

Gifts to the Museum during 1905-06 have been numerous, and cover a wide range both as to character and geographical distribution. In this list are included weapons, baskets, and household utensils from British Columbia; slat armor from Canyon Tom; Indian ceremonial drums; a ceremonial knife with large leaf-shaped flint blade set in a long wooden handle, the part nearest the blade being inlaid with small pieces of *Haliotis* shell, obtained from a Mission Indian of Southern California; stone implements; two colored drawings of the caryatid figures at the entrance of the Painted Chamber in the Temple of the Tigers; specimens of Norse wood-carving; and a guitar from Senegambia, Africa.

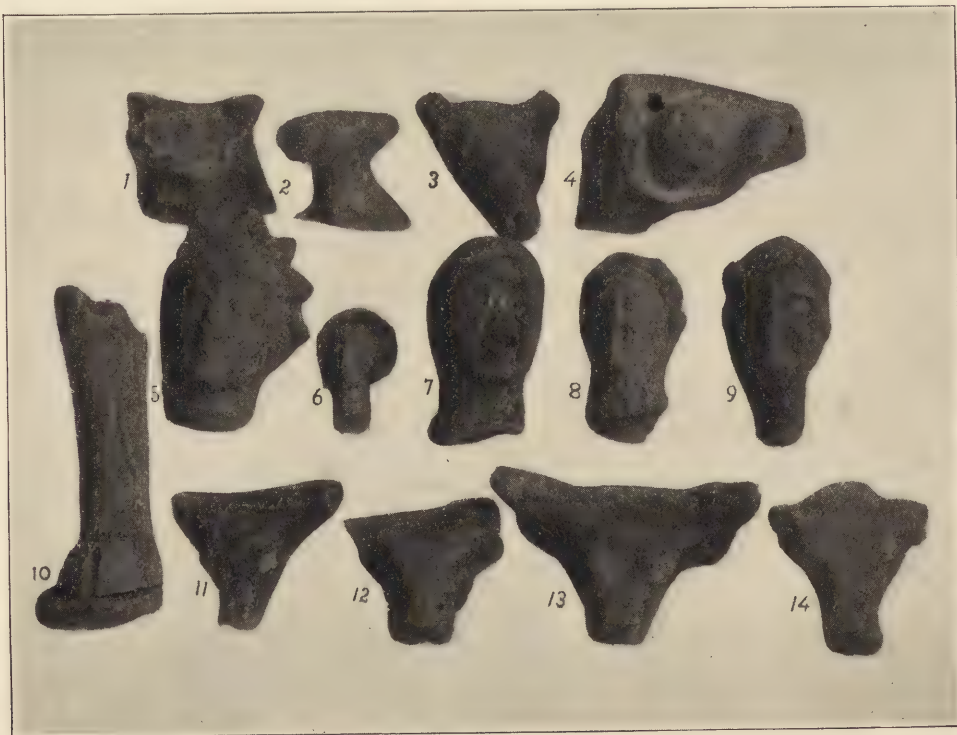
The American Museum of Natural History in New York has recognized the completion of Dr. Putnam's half century of connection with Harvard by the gift to the Museum of a collection of ethnological material to fully illustrate the life of the inhabitants of the Philippine Islands.





HITTITE SCULPTURES AT EYUK, ASIA MINOR

Date about 1200 B. C. An altar in the center; at the left a ministring priest, with a curved lituus (?) in his hand; at the right on a pedestal a bull, either to *be* sacrificed or to *receive* the sacrifice. Sphinx at temple door in background.



TERRA COTTAS (EXCEPT NO. 6), FROM CHIRISHLI TEPE

1. Apparently either a wolf or a bear. 2. Deer, striped in brown from mouth to, and between, ears. 4. Ram's head with curving horn. 5. Female head, hair set in a series of rays. 7-9. Also female heads. 10. Hoof and leg of an ox. 3, 11-14. Cattle heads, in various shapes, and in various states of preservation.

RECORDS ^{OF} THE PAST

VOL. VI



PART IV

APRIL, 1907



A PRIMITIVE CATTLE SHRINE IN ASIA MINOR

CHIRISHLI TEPE, meaning Tragacanth Hill, and named from the glue-producing plant it bears, is one hour's distance S. S.E. from Cavak, and 25 miles from Samsoun and the Black Sea. It is one of a pair of conical peaks, its companion being named Arab Oghlou. Chirishli Tepe is 2,723 ft. above the sea level, and 984 ft. above the Kara Sou, Black Creek, which flows at its base. The twin peak Arab Oghlou is 131 ft. higher, and the saddle between the two 229 ft. lower, than the top of Chirishli. The view from either summit is fine and commanding, the peaks being visible from a wide region about and in turn overlooking all that region. From certain points the two peaks somewhat resemble the horns of an ox, and this fact may have given peculiar force to the cattle worship which was practised on the summits.

On the western slope of Chirishli Tepe near the village of Emirli is a warm spring, which flows with a stream large enough to turn a mill, and is regarded as sacred. There are several other hot springs within a journey of from 1 to 3 days, of which the most famous is that at Cava, the Thermæ of the Greek Geographers, and all of them are still venerated by the native population as possessing special medicinal qualities and as being of special sanctity. In early times every one was doubtless regarded as the habitat of some goddess or god.

We approached Chirishli Tepe on April 7 by the eastern flank, and left our horses in the Circassian village near the foot, from which we also engaged 3 men to accompany us to the summit with picks and shovels. Arriving at the top we enjoyed the grand prospect of rugged hill and billowy plain which stretched in every direction save the south, where Arab Oghlou boldly raised his wooded head between us and the horizon. Then we fell to examining the ruins, while our men scratched the surface of the ground for terra cottas. This was evidently a "high place" once used as a sanctuary. The summit though irregular is in general elliptical and is nearly 100 ft. by 200 ft. in extreme measurements. This was the "holy place" where all the votive offerings are now found. Within this space there were abundant heaps and some regular lines of building stones, but we found no evidence that lime had ever been used to hold the stones in position. In general, following the contour of the hill and at a distance of 50 to 100 ft. below the wall of the temple area, was a second wall. On the northwest the mountain juts out in a natural shoulder, and here are traces of a gate and a third wall 150 ft. below the second. This third wall begins on the south of the main enclosure, sweeps around the west side of the hill, then turns abruptly down the slope, indicating the probable path of ascent, the gate where the question of admitting the would-be worshippers was settled, and protecting the priestesses and residents temporary or transient who were admitted to the inner courts.

From what we know of human nature in Asia Minor past and present it is easy to picture some of the scenes that this shrine must have witnessed. It was once a busy, religious center, as were Boghaz Keuy, Comana, Niksar, Zille, and a host of other places. The shrine had its god, or more probably goddess, who was represented by priests or priestesses. The villagers about belonged to this center. They looked to it for orders and for direction. The land was regarded as wholly or partly the property of the god, and was worked for the benefit of the temple and its attendants. Here the peasant paid the sacrifice he had vowed; here he presented his first fruits and thank-offerings when the harvest was gathered; at the warm spring below he sought healing from disease; on recovery he climbed the hill and offered his thanks and his gifts at the shrine of the god; here he inquired for guiding oracles; and here, if he was charged with crime against another, he fled and found inviolable refuge. The evidence of this worship at Chirishli Tepe is chiefly the terra-cotta figurines which our men were digging up while we were measuring and speculating. In all we found some hundreds of fragments, of a red or dull earthy color, and baked of the common clay abundantly used in Asia Minor for all kinds of brick products. The predominating figure was the head of an ox or cow with branching horns, but other animals were common and we found several specimens of female heads. All were very coarse in workmanship, and most have been

broken and worn in the long ages that have elapsed since the temple of Chirishli Tepe was in its full glory. The appearance of the terra-cottas, some of which have lines of brown or dark red paint, compared with other specimens of pottery, indicates a date perhaps about 600 B. C.

When we invited our Circassian companions to escort us to the top of Arab Oghlou they assented, but added that we must do the digging there ourselves, as the place was very sacred, and they did not dare risk offending its "evliya." Evliya, by the way, is the plural of the Arabic "wely," and is used for the saint who occupies a grave or haunts a locality. The summit was thickly wooded, and as a thick fog had begun to roll up from the plains below, we could see nothing beyond the distance of a few yards, and as we walked along through the forest and the fog, conversation being mainly in whispers, it was easy to believe that we were on ground long regarded with veneration and awe. On reaching the place where Arab Oghlou lies buried, we found a grave enclosed by a rough structure of logs. Our guides, who were, of course, Mohammedans, told us that formerly every year at the "Kourban Feast," the great Mohammedan sacrifice, a deer used to come out from the forest and offer himself to the keeper of the grave to be slain as the sacrifice for the day, but that now, in these degenerate days, such things took place no more. There were deer's horns lying on the grave, however, and they are generally regarded among the common people of Asia Minor as bringing good fortune.

When we began to dig we soon turned up more terra-cottas, and the Circassians, forgetting their scruples in their curiosity, caught the picks out of our hands, and added many more to our collection of these strange old relics. They were not so abundant as on Chirishli Tepe, but were quite enough to prove that a similar, though minor sanctuary, once existed here as on the companion hilltop.

Cattle worship must have been very common among the primitive peoples that inhabited this part of the world. Students of the cults prevailing in Egypt, India, Babylon, and on the shores of the Mediterranean, have much to say on this subject regarding their own fields. Readers of the Bible will recall how the Israelites made the golden calf in the wilderness, how Jeroboam set up calves for worship in Bethel and Dan, and how one of the four cherubim of prophetic vision had the face of an ox, the king of tame animals. In this connection it is interesting to remember that one derivation given for the Hebrew word, "Elohim," God, is from "'oul," meaning horn.

To an agricultural people, the welfare of their cattle is of the very first importance. Probably the farmers residing around Chirishli Tepe used to buy representatives of their cattle made in baked clay (the priests doubtless kept a supply on hand for their customers), and deposit them under the protection of the god in his shrine. This, they hoped, would preserve their animals from disease, accident, wild beasts, sterility, failure of milk, and similar evils. A year or two ago

a Turk was speaking with the writer of disease then prevalent among the stock. He said that the moon was sometimes stayed in its course, and then disease broke out among the cattle. Similarly, sometimes the sun was stayed, and then the farmers should build larger barns, for crops would be abundant. There were persons who had the knowledge of such things, and they had observed the year before that the moon was stayed in its course, and now disease and death were working havoc among the cattle. Blue beads are tied upon the horns, or a quotation from some sacred book, wrapped in a bit of leather, is tied about the neck of a beef creature to avert "the evil eye," in modern custom, and occasionally one member of a flock or herd is sacrificed to ensure the welfare of the rest.

With one other remnant of cattle worship in Asia Minor this brief paper may come to an end. Every stream turns small flour mills, to each of which the water is conducted by an almost perpendicular flume. At the top of this flume, at the most conspicuous point above the mill, two pieces of wood habitually appear, curving outward and upward in the shape of a pair of horns. I am convinced that this is an incidental relic of the cattle worship that used to prevail among the people of Asia Minor.

G. E. WHITE.

Marsovan, Turkey in Asia.



FLOUR MILL IN ASIA MINOR BEHIND A BANK OF STONES AND EARTH.
WOODEN HORNS AT TOP OF THE FLUME



ROMAN THEATER AT VERONA.—Prof. Gherardo Ghirardini, of the University of Padua, is directing excavations at Verona, where a Roman theater, covering an area of 15,000 square meters [3.7 acres], is being uncovered.

NEHAWKA FLINT QUARRIES

IN THE *Nebraska City News* of October 16, 1858, an account is given of an ancient mine near where Nehawka now stands. A number of stories have been told from time to time concerning these evidences of mining, or quarrying, which savor of romance. One related to me by Mr. E. A. Kirkpatrick is interesting.

A number of years ago, when this gentleman was passing through a little town in western Iowa, he met a gentleman who told him the following story:

"I have never been in Nebraska but once, then I went to the gold mines south of the Platte River, about 12 miles. You follow up the stream that empties into the Missouri, about 12 miles south of the Platte, for some 8 miles, until you come to a little branch which joins it from the north. About 2 miles due north of this point is a high hill which is doubtless an ancient gold mine. It is left in deep pits, and the old furnaces were still there when I visited it many years ago. I will tell you how I came to go there: I found an old book in my grandfather's library which told of two men who went to this place to work the old abandoned Spanish mines. They collected a large quantity of gold, and were in the way to amass great wealth when they were attacked by the Indians, and had to run for their lives. They had to leave all their gold, and never returned to the spot. The description was so clear in the book that I started in company with an old miner from Missouri, and by following the directions we came to a high hill, which had been worked to a considerable extent for something. There were remains of old furnaces, and the miner concluded that gold might be there, although we saw none. We determined to go home, get tools, and return to make a better exploration, but the old miner went south and I never went back."

The rocks reddened by fire, found strewn thickly about some of the holes on this hill, gave rise to the "furnace" idea. You may rest assured there is no gold there, only the "Gold" of the aborigine, flint.

Some years ago Mr. Kirkpatrick found some very fine specimens of lead on the surface, not far from this mine, which naturally gave rise to a theory that these mines were prospect holes for lead, but Mr. Griffith also found a piece of galena ore, in the lodge circle, which he opened some years ago, and these stray specimens were doubtless curios, carried there by the mine workers. They only prove that these people had trade and traffic with tribes from a lead-producing country. We might learn from whence, if the specimens could be traced.

In the *Conservative*, J. Sterling Morton's paper, published at Nebraska City, July 11, 1901, is the following:



MAP OF NEHAWKA AND VI-
CINITY

"Some weeks ago Mr. Issac Pollard, of Nehawka, requested me to make a study of the excavations found in the vicinity of his farm, and I went into camp here for that purpose. The work is far from being finished, but we have gone far enough to convince me that this is one of the most interesting fields in the state."

This is the site of the most extensive flint mines in the West; the deposit is found in nodules, which vary in size from a hen's egg to a man's head and are a bluish gray color; in fact, it resembles the blue chert of Kansas, a description of which is found in Brower's *Quivera*.

All the study of the aborigines heretofore, has failed to reveal the place from which the flint chips, scattered throughout the state, have come, but the study of this locality has settled the matter definitely. I suppose they came from Kansas, near Manhattan, and some of them doubtless did, but the greatest quantity came from these mines at Nehawka.

The nodules are found embedded in the second stratum of limestone; the first stratum is about 3 ft. thick, overlaid with drift from 1 to 5 ft. deep. This first stratum was broken up and thrown out; many of the rocks being 3 ft. square. This shows much power, as well as engineering skill on the part of the miners. The second stratum is nearly 3 ft. thick, and contains the flint; the ledges were quite large; the seams being often 5 ft. apart. This made the work of removing these rocks quite difficult, when one considers that the aborigines had no iron tools with which to work. This second stratum was all broken up; few rocks being left larger than a man can handle. One half of the rocks of this second stratum show the peculiar red tinge imparted by fire.

The stratum containing the flint is about half way up the small bluffs which border the Weeping Water, and probably cropped out at one time. The excavations are along the brow of the bluff, and are about 60 ft. wide. We estimate, if these mines were placed side by side, they would reach the distance of one mile.



ROCKS FROM THE QUARRY DEBRIS, SHOWING FRACTURES MADE
BY A HEAVY BLOW



BURR OAK TREE GROWING IN THE QUARRY PIT

Mr. Pollard made an opening, about 80 ft. long, directly through the mine, at a favorable place, and found the work reached a depth of 11 ft., on an average. This opening is from 4 to 8 ft. wide, and shows the mine in a most favorable way.

It shows that they began work about 10 ft. in from the brow of the bluff, and went straight down to the flint stratum. This flint stratum rests on a solid bed of limestone, which forms the floor of the mine. The first of the rocks and dirt removed, they threw over the brow of the bluff, and as they worked back into the bluff this opening was filled with broken rocks, clay, and debris from the mine. This refuse rock still contains many pieces of flint, which were broken out, and to the eye of an ignorant white man, they appear to be of good quality,



END OF TRENCH, SHOWING LEDGE CONTAINING FLINT

but for some reason they were rejected. Few pieces are left in the rocks, and many spalls are scattered through all. As this refuse matter was thrown out, it was kept on a slant of less than 45 degrees, and has every appearance of having been tramped. One place in the excavation made by Mr. Pollard, shows a layer of very sticky, brown clay, about 12 in. thick, which has every appearance of having been mixed or puddled, as if bricks were to be made of it. Many flint-spalls are mixed into it, and it is so tough and hard, now, that a pick was used to get it out.

At the end of the excavation can be seen the broken ledges where they quit work. There the rock shows 3 ft. thick, and is left uneven, some points jutting out 2 ft. from the main ledge or face of the wall,

which seems to be nearly perpendicular. Every short distance along this flint stratum can be seen the marks of fire and charcoal, and ashes are found along the floor of the mine the whole way.

The mystery seems to be, how they broke up such a thick stratum without blasting it, or without iron tools of any kind.

The study thus far seems to substantiate the theory that they used fire in many cases; they probably heated the ledges very hot, and then poured water on them. Scattered throughout the mine and on the brow of the bluffs are huge red drift-boulders; these nearly all show marks on them which could be made only by a heavy blow. The pieces of rock not showing fire, frequently show fractures after they have been exposed to the weather, which indicates that they were



EXPOSED LEDGE SHOWING FLINT NODULES, NEAR
THE NEHAWKA QUARRIES

broken by a heavy blow from something used as a sledge. In the debris removed from the mine, I find an occasional splinter and chip of the boulders. This leads me to the theory that these drift-boulders were used as sledges. That fire was used, may be proven by the color imparted to the rocks. That water was used, is evident from the puddled condition of the clay. Before a definite conclusion can be reached, however, more study must be made.

Pot-sherds are not abundant in the vicinity; in fact, few, if any, had been found before I came. I found one piece of pottery, having fabric impressions, on the surface of the mine, and one very small sherd of smooth pottery in the debris from the mine. These were only discovered after long and laborious search.

Rudely-chipped flints of the "Quivera type" are found on the surface of the mines, but thus far no worked flints have been found in the mine. There is a burr-oak tree, 6 ft. 2 in. in circumference, growing on the mine, and Mr. Pollard informs me that the trees have made no perceptible increase in size in the 45 years that he has known them. These trees have all grown since the mines were worked, as their position plainly shows.

In my report for 1903 is the following:

The flint quarries, referred to in my last report, have attracted so much attention that it became necessary to chart them accurately; to that end I made a trip to Nehawka, April 6, and measured the ground with a steel tape. I also counted the pits. There are 617,800 sq. ft., or a little over 14 acres of surface actually quarried. This result was obtained by a careful measurement of the irregular surface of the 6 different fields in the vicinity of Nehawka. These fields are marked on the accompanying chart.

There are 293 separate and distinct pits in this area. One of these pits has been cross-sectioned, and is found to be 10 ft. deep, and to pass through three ledges of lime rock, from 30 to 40 in. thick; in fact, the whole depth is through solid rock. It can not be stated how many of these 293 pits are of like depth, as but one has been cross-sectioned.

In my report for 1902 will be found the following reference:

In my report for last year [1901] will be found an account of the so-called flint mines, or quarries, at Nehawka. A question was raised in the minds of some people about these quarries, and I was anxious that eminent men should examine the place and render an opinion, so on August 14 a company consisting of the most eminent scientists of the nation went to Nehawka and spent the day exploring these evidences of the Stone Age.

The company consisted of Prof. N. H. Winchell, president of the Geological Society of America; Prof. Warren Upham, one of the most eminent drift geologists of the world, and now secretary of the Minnesota State Historical Society; Prof. J. V. Brower, author of 11 books on geology, archeology, and geography, and the one who rediscovered and explored the Quivera of Coronado, now archeologist of Minnesota; together with Professors Barbour, of the Department of Geology, and Caldwell, of American History Department, University of Nebraska, and Barrett, of the State Historical Society.

Mr. Isaac Pollard, who owns part of the land, entertained us very pleasantly. The day was spent in a careful study of the situation, and the major opinion was rendered in accordance with the tenor of this and last year's report. A statement, signed by the visiting gentlemen, is below:

"This locality is an extensive, but low hill, mainly covered by woods, on the south side of the Weeping Water, above which it rises to the estimated height of about 60 to 75 ft., by moderate slopes, with a gently rounded top. The bed rock forming this hill and the surrounding country, under the general drift deposit, is a bluff limestone, in part, heavily bedded, of nearly horizontal stratification. Its age is understood to be coal measures, or Permo-Carboniferous. On the northern flank of this hill the limestone occasionally out-crops, and elsewhere is covered by only a few feet of the glacial drift. Around the northern side of the hill, at the height of about 40 ft., above the adjoining creek the glacial drift had been extensively excavated in many pits, 2 to 5 ft. deep, 10 to 25 ft. wide, and 30 to 100 ft. long, or more. These pits are situated in a series at a uniform height along the upper part of the hill, following its curvature along the distance of about a quarter of a mile.

"A trench had been dug across one of the largest and longest pits by Mr. Pollard a few years ago, extending 60 ft. or more, with a width of about 5 ft., and attaining at its end (or rather part running into the hill) the depth of about 10 ft. In cutting through the earth dump thrown out of the pit on its lower or down-hill side, this trench reveals an old surface soil, observed for 10 to 15 ft. in length, covered 1 to 3 or 4 ft. by the later earthy drift, supplied from the excavation of the pit. Traces of a higher old-surface soil were also noted, in the dump material showing that the dump accumulated at different times. At the end of the trench, about 7 to 10 ft. below the surface, it reveals a thick stratum of the limestone, with fractured and rifted outlines, as produced by rude quarrying, aided by action of fire. This stratum is especially characterized by its containing many nodules of gray chert, 3 to 6 in. in diameter.



TRENCH CUT THROUGH A FLINT QUARRY BY ISAAC POLLARD

In the dump, and strewn over it, are abundant masses of the limestone, showing little or no effect of the weathering or decaying since their fracture, and many of these masses have empty hollows or matrices of chert nodules, which have been removed. Several large pieces of the limestone, up to a foot or more in diameter, and also a few of the red Sioux quartzite from the glacial drift were seen in and upon the dump bearing on their ends or edges battered marks, as if used in hammering and breaking the limestone masses for the purpose of securing the chert nodules. Artificially chipped small and large fragments of the chert were observed in the dump; but no perfect implements, nor parts of implements, were found by our search. No wood for wedges or levers was discovered; nor any iron, or other indications of work by Europeans. In one place the dump material was seen to have been loosely placed with cavities among its cobbles or stone fragments, so that both hands together could be thrust into a cavity.

"From these features of the place on Mr. Pollard's land, carefully examined by all our party, we attribute the pits to quarrying by the American Indians. How long ago this was done, or during how long a period it was more or less in progress, we can not estimate. It is noteworthy, however, that an oak tree 2 feet in diameter is now growing in this pit where the trench was dug by Mr. Pollard.

"Under his guidance, we also went about 4 miles north from Nehawka, to another large hill, rising, like the foregoing, somewhat above the average height of this moderately rolling and hilly region. This northern hill has upon a large undulating tract of some 10 acres, more or less, forming its top, many pits similar to those before described, but mostly shorter and irregularly grouped, numbering 30 or more. The hill is mostly without trees, and consists partly of cultivated fields; but its top, where the pits are, is overgrown by rank, weedy, vegetation and bushes. These pits seem to us to be surely of artificial origin; but the lack of any trench to show the section beneath the surface, forbids a more definite statement than to say that they were probably made for the same purpose as the others. Such pits are also reported by Mr. Blackman and Mr. Brower as observed in several other places within the distance of a few miles around Nehawka.

"In the southwest corner of Minnesota the red pipestone quarry, as is well known, has been occasionally worked by the Indians during many centuries before the coming of white men.

"The aborigines also had done much laborious copper mining on Isle Royale, and in other localities about Lake Superior. Similarly, it is evident to us that a great amount of rudely systematic and roughly planned work had been done near Nehawka, Neb., by the aborigines to obtain the chert nodules of great value to them for making stone implements."

N. H. WINCHELL,
WARREN UPHAM,
J. V. BROWER.

The following is appended by the late Honorable J. V. Brower, of St. Paul, Minn.

In 1901, at the request of Prof. E. E. Blackman, I fully identified the Nehawka, Neb., quarry pits as artificial excavations by North American Indians during an ancient period of time when firearms were unknown to them. Hence it is important that any archaeological survey of Nebraska should include the Nehawka pits and earthworks as a basis upon which to determine a considerable portion of the literature which is to perpetuate the earliest history of that state. A very serious error would certainly occur should the archaeological history of Nebraska be proceeded with on a series of explorations which might distort the important fact that all of the Nehawka quarry pits were excavated by ancient man for supplies of chert.

No sepulcher, positively identified as the burial place of the aborigines who did this quarrying, has been found. One grave was opened, containing most of the larger bones and part of the skull, with a very low brow and thick walls; a limestone arrow of rude workmanship was the only implement found in the grave. While ruins of lodges are abundant near these quarries, there is nothing to identify them as the homes of those who did this work.

E. E. BLACKMAN.

Lincoln, Nebr., March 5, 1907.

THE AUTOBIOGRAPHIC ELEMENT IN LATIN LITERATURE AND INSCRIPTIONS

PART I

THE records of the Romans show a marked tendency to the personal narrative of events closely connected with the writer's own life, and to personal comment on such events. The importance of this tendency in the literature has long been recognized; all know how Virgil introduces into the heroic past of the *Æneid* the great men of his own day. Still more significant is the fact that the literary types the Romans created, satire and autobiography, are of this personal nature. For satire is merely a criticism by an author of his environment, while autobiography aims at a complete disclosure of the writer's life and personality, being, therefore, the highest expression of the personal tendency.

It is not so generally known that the inscriptions also display, to a high degree, the same autobiographic feeling.¹ An exhaustive search by the writer has brought together a collection of more than 2,000 examples, including every kind of epigraphic record. This number represents only inscriptions in which the autobiographic feeling is so strong as to warrant the use of a first person referring to a definite individual or individuals; all second persons of address, and all the quoted, conventional or undefined first persons, thousands in number, are omitted.

To indicate briefly the extent to which the Romans employed the literary autobiography, more in detail the autobiographic elements of the inscriptions, and any points of contact between the two, is the purpose of this paper.

For the literary autobiography, a summary of Professor West's conclusions will suffice.² As he has shown beyond all doubt, the Romans invented two kinds of autobiography, the simple narrative of events, with the purpose of commending the writer, and the introspective type, or confessions, where the whole development of the soul is set forth without reserve. The first, as Tacitus (*Agr.* 1) points out, was an ancient practice among eminent Romans, but dangerous in his time. The earliest name is *Æmilius Scaurus*, consul, 115 and 107 B. C., and the custom continued during the Republic among such men as *Catulus*, *Sulla*, *Varro*, and *Cicero*, the latter with characteristic modesty, writing only 3 accounts. During the Empire, from

¹See, however, Peck, *The Personal Element in Roman Epitaphs*, in *American Journal of Archaeology*. Second Series, vol. 7 (1903), pp. 88-89.

²West, *Roman Autobiography*, particularly Augustine's *Confessions*. 1901.

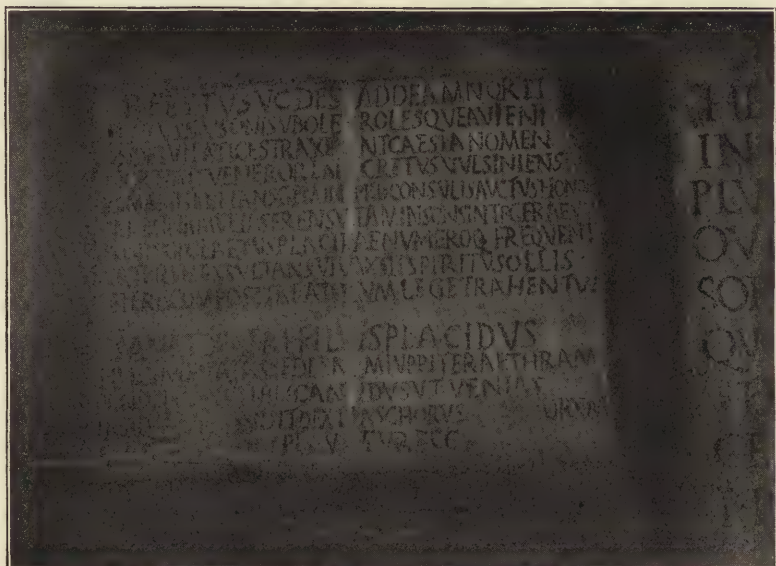
Augustus to Constantine, autobiography becomes rather a privilege of the Emperor and his family. The second type is inaugurated in 400 A. D., by Augustine's *Confessions*, all that its name indicates, "a book without an ancestor, and with no successor for almost a thousand years." All these works, except the last, are gone, but the two types have survived to modern times. Good examples of the first are the well-known *Autobiography of Benjamin Franklin*, and the recent work of Andrew D. White; the second is rare, but comprises such remarkable books as DeQuincey's and Rousseau's *Confessions*.

The Latin inscriptions, all of the first type, rank below the literary autobiographies in at least two respects. First, they are not the earliest inscriptions of an autobiographic character. The Greeks cultivated the autobiographic form, especially in poetic inscriptions, as early as the VI century B. C., and the records of the Assyrian and Babylonian kings are some 1,500 years earlier still. Then, with a few conspicuous exceptions like the Monumentum Ancyranum, there are no extended autobiographies; we can expect in any one inscription simply autobiographic elements.

Otherwise, apart from the question of numbers, the inscriptions show much better than the literature the extent of the autobiographic feeling. The literature is mainly confined to Rome, while the inscriptions come from all the Roman world. Again, the literary autobiography is restricted to the *nobilitas*; inscriptions containing autobiographic elements are from all classes, more frequently the lower orders, including also tradesmen and minor officials. In this connection the statement of Tacitus, already mentioned, is amply confirmed by the inscriptions. Our earliest datable examples, of 138-7 and 132 B. C. (*Corpus Inscriptionum Latinarum*, I, 38—VI, 1293, Bücheler, *Carmina Latina Epigraphica*, 958; C. I. L. I., 551—X, 6950), belong to a Scipio and a Popilius, men of the highest rank; but from before 100 B. C., to the end of the II century A. D., with only 4 exceptions, 3 of them public *laudationes* (C. I. L. VI, 1527, 10230, Augustan, XIV, 3579, Hadrian; VI, 1372, Büch., 426, beg. II cent.), merely the lower classes used autobiographic elements in inscriptions; only at the later date men of high rank again take up the forms, now vulgarized. And in the third place, while the first literary autobiography known, is of a consul of 115 and 107 B. C., the so-called milestone of Publius Popilius, consul in 132 B. C., gives us in stone an autobiography antedating the former by over 20 years.

The nature and extent of the autobiographic elements in these inscriptions can best be indicated by an outline, according to classes, citing characteristic examples from each class; prose and poetry usually require separate treatment.

In the prose religious dedications, the conservatism prominent in all religions, above all the Roman, restricts the expression of autobiographic feeling to narrow limits. From the III century B. C., for 9 centuries, the dedicatory forms are mostly preserved, the only changes



DEDICATORY POEM OF THE POET RUFIVS FESTVS AVIENVS IN THE VATI-
CAN MUSEUM, ROME. [FIG. 1.]



WALL IN THE CAPITOLINE MUSEUM, ROME, CONTAINING AMONG
OTHERS, EPITAPHS OF Q. POMPEIVS SOSVS (TOP, CENTER),
MANILIA NICE (NEXT BELOW), AND TI. CLAUDIVS
EUHEMERVS (R. HAND COR.), ALL
AUTOBIOGRAPHIC. [FIG. 2.]

admitted being of a *solvi*, *posui*, *dedicavi*, or *meus* for the corresponding third person.

The case is different with the dedicatory poems. As they were rare, no set forms were created for them; and as their authors were generally of higher rank, they told of their personal honors. These poems are thus both individual and eulogistic of the dedicator, rather than the god. The dedication of the poet Avienus (C. I. L. VI, 537, Büch., 1530), well illustrates these points (Figure)³:

Rufius Festus, a most distinguished man, from his own property to the goddess Nortia.

I, Festus, from Musonius' stock, Avienus' child,
(From him thy flowing streams, O Cæsia, drew their name),
Thee worship, Nortia, sprung from the Vulsinian race;
Dwelling at Rome, exalted with proconsul's honors twice,
A sower of many songs, of upright life, still hale,
Rejoicing in the wedlock of a Placida and glad
For sons in plenteous number. May their lives endure!
All else will be fulfilled by fate's well-ordered law.

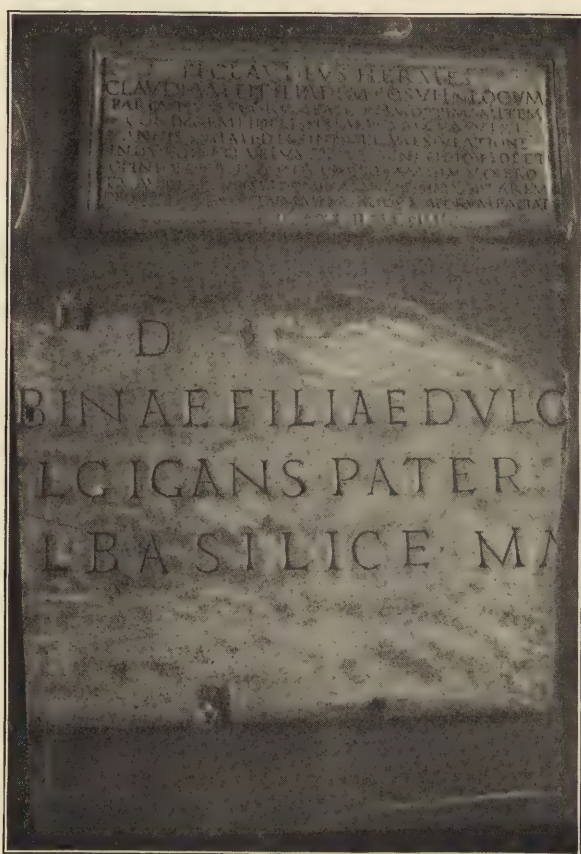
Passing over the intensely personal *devotiones*, we reach the epitaphs. They have always given the best possible occasion for self-praise by living and dead; this was preëminently the case in pagan Rome, where the Manes, residing in or near the burial place, could easily be represented as speaking or as addressed. But here, as in the dedications, we find interfering forces. They are two: first, the tendency of all epitaphs, ancient and modern, to cling to certain formulæ; and secondly, the fact that during the Empire the Latin epitaphs assume in increasing numbers the form of dedications to the *dei Manes*, hence the religious conservatism of the dedications again operates.

The conflict of the autobiographic feeling with these tendencies has two results. In the prose epitaphs, just as in the dedications, and that, too, more often in the *dis Manibus* type, there is a simple variation between first and third persons, with the regular form otherwise kept. For example (*Ephemeris Epigraphica*, vol. 8 [1899], p. 162, no. 663):

Sacred to the *dei Manes*. Danæ Valeria, lived 45 years. I, Tiberius Claudius Anoptes, made this to a well-deserving wife.

This variation is very frequent in phrases of the type, *vixit mecum* (*cum eo*), *vixi* (*t*) *annis*: the epitaph of Tiberius Claudius Euhemerus in Figure 2 (C. I. L. VI, 15400), for instance, reads, "to a husband well deserving, with whom I lived 30 years without any quarrel." Less common are added expressions of praise like *de me* (*se*) *bene merito*, *de quo nihil dolui* (*t*) *nisi mortem*, and complaints similar to that in Cicero, *De senectute* 84, borrowed from an epitaph, *cuius a me corpus est crematum, quod contra decuit ab illo meum*.

³The author wishes to express his obligation to Mr. Ralph V. D. Magoffin, Fellow of the American School of Classical Studies at Rome, who kindly secured, at the cost of considerable time and trouble, the unique series of photographs used in the accompanying illustrations.



EPITAPH OF CLAUDIA ILIAS, IN THE PORTICO OF THE CHURCH OF MARIA TRASTEVERE, ROME. [FIG. 3.]

But in the second place, there is developed a great variety of autobiographic formulæ in prose and verse. From the living are greetings to the dead, and very often wishes that the earth may rest lightly on them, an expression many times borrowed by the elegiac poets; the Christians also make appeals for prayers and commendations to saints. When the living set up stones to themselves and others, there occur various legal formulæ regarding the disposition and protection of the monument, the *iura sepulchrorum*, as the expression *ne de nomine nostro exsistat* of the inscription, given in Figure 2, set up by Manilia Nice (C. I. L. VI, 21925). When the dead speak, the ideas are various. They may ask for a light resting of the earth over them, or the prayers of the living; they may address good wishes or warnings to the passer-by; or they may utter sententious reflections on life, death, and the hereafter.

But at most, these variations and formulæ comprise less than one-half of the epitaphs; in the rest the autobiographic feeling is given freer rein, and the examples show individual traits.

However, the prose epitaphs remaining for the most part express the few stereotyped ideas already enumerated, for which formulæ were sometimes developed. The inscriptions set up by the living to the dead are largely laudations, modeled after the public *laudationes*, which are no more honest than the praises on modern tombstones. Take, for instance, such an effusion as the following (C. I. L. VI, 15106, Figure 3):

I, Tiberius Claudius Hermes, placed Claudia Ilias, the daughter of Tiberius, in the resting place of her parents, my best of patrons, and also my most faithful wife, with whom I lived 22 years, 1 month, 2 days, without any rivalry, because of her forbearance. By her kindness I have gained trust and a good name (and shall gain them) as long as I live. But, O best and most holy mistress, I would desire of the gods that some of my people would consider my death such (a loss).

In fact, perhaps only one man ever told the whole truth. He starts out in the regular strain about his "dearest wife," but in closing, he openly admits that "on the day of her death I gave greatest thanks among gods and among men." (C. I. L. VI, 29149.)

Again, where a dedicator, presumably living, writes an epitaph for himself and others, the subject is again the erection and preservation of the monument or a gift of money on condition of the bestowal of annual offerings. Indeed, it is often hard to draw the line between repeated formulæ and individual phrases.

But we have more variety in the utterances ascribed to the dead. Here first appear extended autobiographies, too long to quote, as of Quintus Æmilius Secundus (C. I. L. V, *136, *Eph. Epigr.*, vol. 4 [1881], p. 537 ff.), who lived in the time of Augustus, and of the charioteer, Calpurnianus, much later (C. I. L. VI, 10047). Self-praises are also frequent, as (C. I. L. VI, 33087, Büch. 1563, time of Cæsar, Figure 2), "while life allowed, we lived 60 years in harmony; while living we made an effort to have a monument when we had met death, and they (*sic*) made a burial chamber that we might bury Acme, a freed-woman, with us." Further, there are addresses to the passer-by resembling those of the formulæ, consisting of requests or advice, thus (C. I. L. VI, 27365, inscription of Thetis), "you who read and doubt that there are *manes*, when you have made a solemn promise, call on us, and you will know," also to surviving friends and relatives. Finally, we have again brief, but profound, reflections on death and the life hereafter; one Titus Cornelius Libanus, voices their general sentiment (C. I. L. X, 777), "at last I found a place where I might rest."

HENRY H. ARMSTRONG.

Whitworth College, Tacoma, Washington.

(To Be Concluded in May Issue.)

PALESTINE EXPLORATION FUND

THE proposed researches in Asia Minor by Professor W. M. Ramsay, and Professor J. R. S. Sterrett, will be of great interest to Biblical scholars on account of the light likely to be thrown on the history of the Hittites, and the large collection of their inscriptions now existing will probably be increased. Unfortunately no accepted decipherment of the texts has been reached, and we are ignorant of their meaning, and so our knowledge of that great nation is indirect and fragmentary. In reading the prospectus of this work, one wonders if these gentlemen know the difficulty of getting a permit to excavate, which was never so difficult as it is now. An American, who went to Palestine last year, thought of the funds as the principal need, but he has learned his error. There is, of course, no difficulty in getting a courteous promise that a permit will be granted, but that is not enough.

The thorough study of Petra, by Messrs. Libbey and Hoskins, has disclosed probably all that can be known by surface work, and has reminded us of the exploration of Professor G. L. Robinson, of Chicago, in 1900, when he discovered and reported the high place with its steps, altar, drain, etc. I was lately reading in a religious monthly, of 1855, a narrative by E. S. Philrock, of Brookline, Mass., of a visit to Petra, and was surprised to find him describing the same high place. He wrote: "At this elevated point we found a most curious relic not mentioned by any other traveler. An area, measuring 48 ft. by 21, is cut to a plane surface, sunk several inches below the level of the rock, and nearly level. Near the center is a tablet left, about 6 in. high, 5 1-2 ft. by 3; and on one side is a recess, in which stands an altar 6 ft. by 9, with 3 steps leading up to it. On one side of this is a bowl-shaped basin, some 4 ft. in diameter, with a little hole to let it drain at one corner. The altar faces nearly west, or towards Mt. Hor, and is apparently very ancient, perhaps belonging to some of the early descendants of Esau, who were accustomed to sacrifice in high places."

This is a good description of the very clear plan drawn by Professor Robinson, and published, as I think, in the *Biblical World*.

It is pleasant to learn that Dr. Selah Merrill has nearly completed the book on "Ancient Jerusalem," on which he has been engaged for many years. It will have many plans and plates, and will contain the result of his studies of the traces of the older city, in which he has lived so many years. A recent attack upon him by an irresponsible writer in an American magazine will do him no injury, for its statements as to the Protestant Cemetery and the removal of bodies to a new one are wholly false, and will only injure the Spaffordites and the publishers of the magazine.

THEODORE F. WRIGHT.

42 Quincy St., Cambridge, Mass.

EDITORIAL NOTES

PROTEST AGAINST THE DESTRUCTION OF THE TEMPLE AT PHILÆ.—The Society of Antiquaries, of London, has entered a protest against raising the dam on the Nile, at Assouan, to the height originally intended. Such a height would submerge the temple at Philæ, as well as a large part Nubia.

DESTRUCTION OF EGYPTIAN INSCRIPTIONS.—Prof. Petrie has found that a turquoise mining company, at Sinai, has been destroying, by blasting, numerous inscriptions cut in the rock, as well as steles. They have also taught the natives how to blast. At the suggestion of Prof. Petrie, the Egyptian Government commissioned Mr. Currelly to cut out all the rock inscriptions which were accessible. These pieces have been transferred to the Museum at Cairo.

ORIGIN OF THE CANAANAIC ALPHABET.—Prof. Fr. Prætorius has put forth a new theory as to the origin of the Canaanaic alphabet. He believes that the oldest forms of the letters must have had syllabic value, and that they can be brought into close connection with certain signs of the Cyprian writing. At least 11 of the 22 Canaanaic letters, he claims, have sprung directly from the Cyprian, or from a syllabary previous to it, from which it originated.

INTERNATIONAL ARCHÆOLOGICAL CONGRESS.—The next International Archæological Congress will meet at Cairo, from April 10 to 20, under the distinguished presidency of Prof. Maspero. It will be held in 3 sections—at Cairo, Alexandria, and Thebes. The last Congress met at Athens in 1905.

SYNAGOGUE RUINS AT TEL-HUN.—The expedition of the German Orientgesellschaft has recently unearthed some synagogue ruins at Tel-Hun, the probable sight of the New Testament Capernaum. Some believe that the ruins now found are those of the synagogue in which Christ preached and performed miracles. It was a massive building, almost square, with 2 rows of columns through the middle. The eastern side only has been preserved in a comparatively satisfactory condition; but this is richly decorated in a distinctively Jewish style.

WORK AT PERGAMON, ASIA MINOR.—The German Archæological Institute has been carrying on excavations at Pergamon. The special work during the autumn was clearing the third and largest gymnasium of the city. This was intended for the use of men, while the others were for the boys and youths. Several artificial mounds on the plain are being opened, and the remains of the ancient bridge over the Selinus are being studied. Arches were used here in various forms in the II century B. C., before Roman influence was at work. A fourth study of the Institute is the aqueducts, some of which are astonishingly large, and others of specially interesting construction.

REVIVAL OF PAPER MADE FROM PAPYRUS.—An English company has been formed to cultivate papyrus and manufacture paper from it. After a long search for the real papyrus, they now think they have found it near the Jordan River. Their papyrus farms are in Egypt, where, watered by the Nile, three crops a year can be gathered. This spring they expect to have 100,000 tons of the pulp ready for the market.

PHŒNICIAN TOWN ON THE ISLAND OF SAN PANTALEO.—Prof. Salinas, curator of the National Museum, of Palermo, Sicily, has made preliminary excavations on the site of the buried Phœnician town of Mozia, on the island of San Pantaleo. The walls, several towers of which are still visible, make a circuit of wide extent. Two of the town gates, one to the northeast, and one to the southwest, and a curious battlement built with semi-circular blocks, have been uncovered already. One of the archaic gateways, with an inlet worked into it, is similar to the Kothon at Carthage. Much of the building was done with blocks of colossal size.

EXPEDITION FROM CORNELL TO ASIA MINOR.—An expedition of Cornell explorers under the leadership of Prof. J. S. Sterrett will start this spring for Asia Minor, where they intend to make surveys and to study inscriptions in order to determine the location of cities now lost. Their work will lay the foundation for future archæological investigations. Other members of the expedition are: B. B. Charles, instructor in Semitics; A. T. Olmstead, formerly fellow in the American School at Jerusalem, now at Athens; C. O. Harris of the American School at Athens; and J. E. Wrench. Mr. Carnegie, Mr. Schiff, and Mr. W. K. Vanderbilt will finance the party.

TOMB OF QUEEN MEIE AT THEBES.—Reports have been received to the effect that Mr. Theodore Davis has discovered at Thebes the tomb and mummy of Queen Meie, the mother of Amenhotep IV. The tomb is a square sepulcher cut out of rock adjoining the tomb of Rameses IX. Aside from the damage done by percolating water, the tomb is, to all appearances, in the same condition as when left by the priests who desecrated it in their rage because of the religious reforms instigated by Meie's son. They had left the jewelry, which included bracelets, a necklace of gold beads and ornaments of gold inlaid with precious stones and the imperial crown of the queens of Egypt. This crown is of simple design, representing a royal vulture holding a signet ring in each talon.

TEMPLE OF POSEIDON ON THE ISLAND OF TINOS.—The Belgian archæologist Grainger, has laid bare the Poseidon temple on the island of Tinos, in the Ægean Sea, and with it a hall of columns, a round seat or *exedra* of marble, a series of sculptured re-

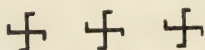
mains such as two dolphins in relief, and a number of inscriptions. Most of these objects were gifts dedicated to Poseidon and Amphitrite. One of them was dedicated by the Rhodian navy; others give the names of artists otherwise unknown. A considerable portion of a marble sundial giving also the directions of the wind, the course of the sun and the seasons was found. An inscription states that this was modeled after the astronomical work of Andronicus Kyrrhestes. It is here learned also that Andronicus was a native not of Kyrrhos in Syria, but of Kyrrhos in Macedonia. Several other interesting facts about this early astronomer and his work appear in this inscription.

TIMEKEEPERS IN ANCIENT BRITAIN.—A possible solution of the question as to what kind of timekeepers the ancient Britons used, is suggested by the recent gift to the British Museum of a large bronze vessel, found by the side of a watercourse, near Baschurch, Salop. It is of extremely thin metal, with a maximum diameter of $17\frac{3}{4}$ in., 12 in. high, and weighing now $3\frac{1}{2}$ lbs. There are traces on the vertical neck of two iron attachments of anchor forms, exactly opposite one another. "The base is rounded, and has in the center a perforation 1-5 in. in diameter, recalling a similar feature in copper bowls till recently used as water-clocks in Ceylon." The bowl was placed on the surface of water and, gradually filling, it sank in a certain period of time, after which it was floated again. Other similar bowls have been found in different parts of Great Britain, always near water. "As the Romans had no water-clocks till 159 B. C., and the Greeks as early as the IV century B. C., had water-clocks on a different principle, it is unlikely that the Britons borrowed from Europe and quite possible that the device was introduced from Babylonia or India."—[Abstract from *Athenaeum*, London.]

DOLMENS AND BURIAL MOUNDS OF THE EARLY EMPERORS OF JAPAN.—"It is extremely probable that the Japanese obtained the idea of raising mounds from the Chinese, the earliest burial mounds in China dating from 1848 B. C. Little is known about the earliest Japanese mounds, but the later ones are always more or less large and invariably contain either a sarcophagus or a dolmen." "The dolmens are always near the coast, or in the basins of the larger rivers, which points to the fact that at the time of their erection, the Japanese only occupied these districts, the other parts of the country being occupied by aborigines—the Ainu. The distribution of the early Imperial mounds is also of importance historically. They are found in 4 districts, which goes to prove that at an early date the country had no central government, but that there were at least 4 independent tribes, each occupying one of the districts where the large Imperial mounds are found. The date of these mounds is between the II century B. C., and the V or VI of our era." The Imperial mounds are double, with a conical peak at one end, all being

large and terraced and moated. They are a combination of the square and circular varieties. Around each terrace a series of terra-cotta tubes—"Haniwa"—about 18 in. high, and 15 in. broad, are set in rows. Possibly they represent the wives, attendants, etc., who were formerly buried with the emperor. This custom was discontinued in 2 B. C., when terra-cotta figures were substituted for the human victims. Many of these figures have been found, some terminating in a "Haniwa." The largest Imperial mound is 2,000 ft. long, and covers approximately an area of 84 acres. The burial is, in every case, in the conical peak of the circular part of the mounds, which are usually entirely artificial, but in some instances a natural eminence has been utilized.—[Abstract from *Athenaeum*, London.]

This use of terra-cotta figures to represent the wives and attendants of the person buried, and to be substituted for the human victims, corresponds to the uses of female stone images found so abundantly in southern Russia, as described by Vladimir Riedel in *RECORDS OF THE PAST*, Vol. V, Part 2.



BOOK REVIEWS

LIGHT ON THE OLD TESTAMENT FROM BABEL*

THESE is probably no one better qualified to present the facts which have been brought to light in Babylonia bearing on Old Testament History than Dr. Albert T. Clay, who has embodied these results in his last volume entitled *Light on the Old Testament from Babel*. In the introduction he pertinently asks the question "why is there such an intelligent interest displayed in these days in Oriental excavations?" The answer to this, he notes, is found in the almost universal desire for "more knowledge concerning Biblical matters." It might further be noted that there is a general increase of interest in all lines of archæological research. Nabonidus, the great archæologist of Neo-Babylonian time, whose downfall was in part due to his interest in archæological research, was about 2500 years in advance of his age.

Dr. Clay further brings out the fact that although "Israel enjoyed—in common with other peoples—certain social, political and religious institutions, as well as rites and customs," yet "there is no justification for the extravagant assertions concerning the Hebrew culture as a whole, which have been made in some of the recent *Bibel und Babel* literature." He admits, however, that Israel was directly

**Light on the Old Testament from Babel*, by Albert T. Clay, Ph.D., Assistant Professor of Semitic Philology and Archæology, and Assistant Curator of the Babylonian Section, Department of Archæology, University of Pennsylvania. Consulting editor of *RECORDS OF THE PAST*, pp. 437, 122 illustrations and map. The Sunday School Times Company, Philadelphia, 1907.

indebted to the Babylonians for some of the stories in Genesis "of the times prior to Abram, and also certain customs which belong to the period after the Babylonian exile." Concerning the Babylonian origin of the Hebrew Sabbath he states that although "the Babylonians did observe the seventh, fourteenth, twenty-first, twenty-eighth, as well as the nineteenth day of their lunar month" and that upon this day the "Hebrew Sabbath may in some respects be based," yet it was not observed every seventh day, nor was it a day of rest for the common people, "but was observed as far as we know only by the king and his officials."

In the chapter on The Great Antiquity of Man, Dr. Clay carefully avoids stirring up the controverted points as to which of the sites that have been excavated have yielded the oldest remains of man. There



From Light on the Old Testament from Babel.

TERRA-COTTA BABY RATTLES FROM NIPPUR

seems to exist considerable rivalry among excavators to claim the distinction of securing the earliest human records, but although later inscriptions found at Nippur record that city as one of the oldest yet, Dr. Clay does not commit himself on this point, but waits further evidence from earlier inscriptions which may yet be found. His argument as to the great antiquity of civilization in Babylonia is based on the fact that the earliest tablets found show that man had attained to a sufficient degree of civilization to write his thoughts "in an intelligible and permanent form." Also that in the earlier Babylonian inscriptions "five principal Semitic languages are recognized. * * * All scholars agree that there was an original Semitic tongue from which these have sprung. Taking into consideration the fixed character of the Babylonian language in the earliest inscriptions; that the

grammar already shows phonetic degeneration, and that there is little difference to be observed in the language nearly four millenniums later, we are prompted to inquire: How many centuries must be accounted for in the history of this tongue since its separation from the original Semitic language, when their common ancestors used a common tongue?"

A question which arises in the minds of many as to how these Babylonian cities became buried is so well answered by Dr. Clay that we quote his exact language. "In Babylonia mud bricks were largely used for homes and other building operations. The walls from time to time were plastered. As the mud washed down, it caused the level of the court or sidewalk gradually to rise. It is well known that the level of the streets and alleys rises more rapidly than the ground floors of the houses, owing to the fact that the floors are swept, and



From *Light on the Old Testament from Babel*.
PAVEMENT LAID BY ASHURBANIPAL, KADASHMAN-JORGU AND
URNINIB

little attention is given to the streets. In consequence, upon entering a house in the East of to-day, one is frequently forced to step down into it. And when the floors become too low the roof of the house is removed, the rooms filled in, the walls raised, and the roof replaced."

Dr. Clay devotes several chapters to the Babylonian Creation Story, the Babylonian Deluge Story, the Tower of Babel and the Babylonian Temple, and an analysis of the Fourteenth Chapter of Genesis, the historical accuracy of which has been so well proved by recent discoveries. He closes this last chapter with the following pertinent conclusion: "The increase of knowledge gained through the inscriptions of this period has in every instance dissolved conclusions arrived at by those critics who maintain that the patriarchs are not to

be regarded as historical. And in view of these things is it not reasonable to expect the specialist who desires to theorize to confine his suppositions and conjectures, until he has some kind of facts upon which to base them, to scientific journals, or, in other words, that he should not popularize them, and bring them within the range of the understanding of the Sunday-school teacher?"

Among the interesting points touched in his chapter on Babylonia in the Days of Abraham is their "cumbersome" system of recording the dates, which necessitated business men keeping records of their individual lists of the names of years; a regular post system for dispatching letters and packages seems to have existed at this time, and a number of lumps of clay used as labels or tags, some with the marks where the cord passed through them, have been found. These lumps of clay bear the names of the individuals for whom the parcels were intended and also the seal impression of the sender.

It is interesting to learn that among the hosts of scribes employed in Babylon during the I dynasty a number of women are known to have followed this profession. Numerous children's toys have been found belonging to the days of Abraham, including clay horses, goats, elephants, etc.; also four baby rattles of the same material shaped like a chicken, doll, drum, and a head, in the hollow body of which is a small stone for making the noise when shaken. Such intensely interesting details as these, which add so much to the reality of those early times, appear throughout the book and keep the interest of the reader at a high pitch.

Two chapters are devoted to the Code of Hammurabi, from a study of which the best idea of the everyday life of the Babylonians in Abraham's time can be gained; in the latter chapter on Moses and Hammurabi he discusses the vexed question as to the relation which the codes of these two great law-givers bear to each other. He admits that Israel's code "owes some indebtedness to the Babylonian," but believes that similarity in many of the laws arises from common customs, which are peculiar to that entire district. He concludes that "in short, dependence upon the Babylonian code, or even a common origin for both, can not be proved at the present, and from the light at hand it does not seem plausible."

He concludes his chapter on the Amarna Letters, which have thrown so much light on the history of Israel before and during the Exodus by the deduction that the Pharaoh of the Exodus was "Amenophis II or III, preferably the former."

The Babylonian Temple Records which have been discovered are full of interesting facts, especially because in their setting, they resemble the bits of information to be found in the long list of names recorded in Chronicles. For instance, one tablet gives the information that a man was replaced by a woman at the same salary per month.

The latter part of the volume is devoted to the Assyrian and Neo-Babylonian inscriptions and closes with Babylonian life in the days of Ezra and Nehemiah.



A

CLAY LABELS OR TAGS, AND TABLET WITH ITS ENVELOPE

From Light on the Old Testament from Babel.

B



A. Clay tablets or tags having holes through which a cord passed. Some contain seal impressions of the sender while others contain records; e. g., "one sheep, the shepherd Uzi-ihu." Such clay tags have been found belonging to the time of Abraham and other periods, and indicate an extensive post system.

B. Clay tablet and Envelope. The inscription on the tablet is repeated on the envelope. Where letters were sent, only the name of the person for whom it was intended and the seal impression of the sender were put on the envelope.

There is but one adverse criticism to be made, and that is in the most vulnerable part, the index. This is not as full or as carefully prepared as the high quality of the work in other respects would warrant us in expecting. As a specific example: Nabonidus has but two references in the index, both in the early part of the book, while there are a number of very important statements made concerning him in the latter part of the book in the chapter on *Neo-Babylonian Inscriptions*, to which no reference is made. Even so prominent a character as Cyrus fails to be mentioned in the index, although several pages in the book are devoted to him. Such defects, fortunately, can be easily remedied in later editions.

We can not commend this book too highly, and would recommend it to all classes of readers. Those already interested in Biblical research will find it the most complete and readable summary of recent discoveries in Babylonia which has appeared. Those who feel inclined to consider the vast expenditures of money on such archæological excavations as foolishness, would, if they could be induced to read this book, be converted into associate if not active archæologists. Perhaps the most pleasing feature of the book is the total absence of that personal controversial spirit which, unfortunately, creeps into the writings of so many of our prominent archæologists.

FREDERICK B. WRIGHT.



THE "TEMPLE LIBRARY OF NIPPUR"

AN ELABORATE monograph* embodying results of explorations made by the Babylonian Expedition of the University of Pennsylvania has been issued, which will no doubt afford an opportunity for Assyriologists to become familiar with, and to properly determine the value of the discovery made, as is therein asserted, of the Temple Library of Nippur to students of the antiquity and progress of ancient civilizations.

The author has devoted considerable space in this monograph to a preface which could, with propriety, have been written to include only the last two paragraphs.

In the first chapter "On the age of Babylonian Literature" the author says: "According to Berosus, a Babylonian priest who lived some time between 330 and 250 B. C., the origin of all human knowledge goes back to divine revelation in primeval time. * * * Berosus' statements with regard to the mythology and history of his

*The Babylonian Expedition of the University of Pennsylvania. Series A: Cuneiform Texts, edited by H. V. Hilprecht Vol. XX, Part 1. Mathematical, Meteorological and Chronological Tables from the Temple Library of Nippur, by H. V. Hilprecht. "Eckley Brinton Coxe Junior Fund" [pp. xvi + 70 with 30 pp. of Autographic, and 15 pp. of Phototype reproductions]. Phila.: Published by the Department of Archæology, University of Pennsylvania. 1906.

own people have been so amply confirmed by cuneiform documents, that at the outset we may assume with safety, there was a general Babylonian tradition, according to which the beginnings of agriculture and architecture, religion and legislation, writing and reading, mathematics and astronomy and other sciences, and of various handicrafts and arts practiced by the inhabitants of lower Mesopotamia, were lost in the remotest antiquity."

The author draws deductions in support of this from the discoveries made at Nuffar, Tellô, Fâra, Bismâya and Abû Habba and says: "On the basis of this and other arguments drawn also from a Semitic influence and the evident decay of the Sumerian language, noticeable even in the earliest inscriptions at our disposal, and with due regard to the enormous accumulation of debris below the ancient arch of Nippur, I had, sometime ago, reached the general conclusion that the first settlements of this city can not have been later than c. 7000 or 6000 B. C. My discussion of the 'New Chronological [List] Fragment' published in Plate 30 [chronological list of early Babylonian Kings, the dynasties of Ur and Isin, c. 2000 B. C.] will furnish material to show that the Babylonians had facilities to follow their political history far beyond the time of Sargon I and Narâm-Sin, * * * as far back as the fourth millennium before our era. * * * Our knowledge of Babylonian science and literature, however, has thus far been derived chiefly from the library of Ashurbânâpal (668-626 B. C.) which, according to the colophons often found on the tablets, consisted largely of copies of Babylonian originals preserved in the cities of Akkad, Babylon, Cuthah and Nippur. But it was generally maintained by Assyriologists that many of the scientific and literary texts from the Kuyunjuk collections were not for the first time fixed in writing in the VII century before Christ, but existed in some form or other at a considerably earlier period."

After citing numerous tablets and inscriptions heretofore published and fully examined and translated by scholars, the author sums up his conclusions as follows: "The final result will doubtless prove the correctness of the view of the extraordinary age of the entire Babylonian civilization maintained by Berosus, and in very essential features already corroborated by modern Assyriological research. The texts from the Temple Library of Nippur published in this and other volumes will, it is hoped, contribute their share toward the solution of the problem by enabling us to trace the different branches of Babylonian literature known from the library of Ashurbânâpal (c. 650 B. C.) to the middle of the third millennium, and in some cases even beyond it.

"In the first chapter devoted to this subject—chapter II of the present volume—the writer [author] will endeavor to show, how a certain class of tablets correctly designated by Bezold as Mathematical * * *, can be studied for the first time methodically with the aid of the important new material made available through the discov-

ery of the Temple Library of Nippur. As far as unearthed and studied, this library consists of two large collections of tablets and fragments, like the library of Ashurbânâpal, discovered in two different buildings at two different parts of the mound. The one, excavated in the long ridge to the west of the Shat en-Nil, was written at the time of the Cassite rulers (c. 1350 B. C.), the other, found in the large triangular mound opposite it, dates from the period of the first dynasty of Isen, (c. 2200 B. C.)."

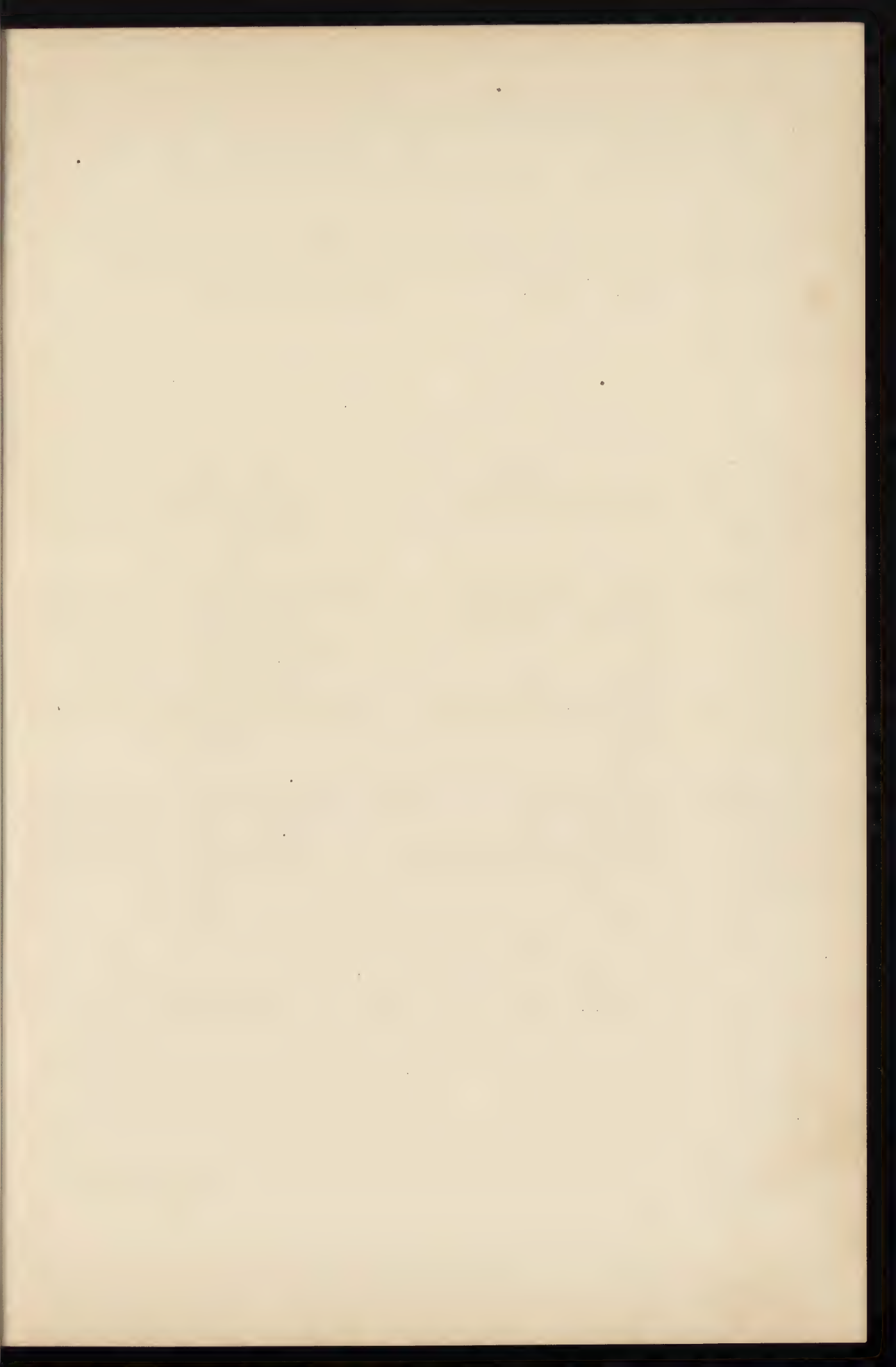
Chapter II, under the heading "Multiplication and Division Tables" is devoted to a general presentation of the tables which the author asserts are from the Temple Library of Nippur and which consist of "multiplication and division tables, tables of squares, tables of square roots, a geometrical progression, etc." Chapter III is a short presentation concerning tablets that reveal something of the ancient system of weights and measures. This is followed by Chapter IV containing the only tablet of a historical character which the author presents from what he describes as the Temple Library of Nippur, and before referred to as "A New Chronological List" reproduced by phototype in plate xv, likewise in autograph in plate 30.

This chronological list of early Babylonian Kings seems to be by far the most important discovery made at Nippur. The author says: "The new chronological fragment, written towards the end of the third millennium furnishes us another link in the chain of arguments, showing that chronological lists with the names of dynasties, the number of rulers belonging to each, and their respective years of government actually existed nearly 2000 years before King Nabonidos, whose statements have been subjected to a very severe criticism. * * * If, therefore, such chronological lists as the one here published were preserved in the temple archives and libraries of the Neo-Babylonian empire, which appears to me certain, the priests and scholars of Nabonidos were able not only to trace the history of their country to Sargon I, but to a considerably earlier period."

The subject-matter is followed with 30 pages of autograph reproductions and 15 pages of phototype reproductions of tablets which the author asserts with considerable show of feeling and emphasis, were not taken from "anything else than the Temple Library of Nippur."

This monograph is a notable contribution to a better and more clearly defined knowledge of the progress of a very early civilization, but it is unfortunate that the author should present the record of his work in such a controversial spirit. It will be difficult for the layman to determine whether this monograph should be accepted as testimony, as evidence, or as proof of the results of this exploration as deduced by the author so far as they apply to his unqualified assertions in the preface.

THOMAS FORSYTHE NELSON.





PORTAL OF ALL NATIONS, PERSEPOLIS

RECORDS ^{OF} THE PAST

VOL. VI



PART V

MAY, 1907



SITE OF ANCIENT PERSEPOLIS

PERSEPOLIS is the name identified with the group of ruined palaces which cuneiform inscriptions have located as the site of the ancient royal palace of Darius, the pillared halls of Xerxes (the king Ahasuerus of the Bible) and the throne room of Artaxerxes, who each in turn succeeded Cyrus, the Great King of the Medes and Persians.

Here is a field for thorough research by the practical archæologist that is as yet almost unexplored, notwithstanding the many illustrations, descriptions and perfunctory examinations made often by those imbued with the true archæological instinct, who have visited the locality, even those as early as 1676 being profusely illustrated with etchings and copper-plate engravings. In the study, however, of the ruins of these stately palaces, whose splendor and magnificence have thus been the theme of the theorist for more than 200 years, they have been viewed almost entirely with reference to their ethnical influence in the evolution and development of architectural and artistic conceptions. The scientific archæologist with the pick and shovel has not as yet been permitted to any great extent to read the record that lies buried beneath the surface.

Mr. Herbert Weld Blundell, who superintended an expedition from England to the spot in 1891, with the purpose of taking molds of the more prominent sculptures, says: "There are few famous sites that have been more the subject of examination and debate, and yet have

preserved so successfully the secrets of their subterranean features as the great group of palaces known as Persepolis. Any addition, therefore, to the knowledge we possess, obtained by ever so modest a scratching of the soil, will be welcomed by archæologists, who have had to depend so long on calculation and conjecture. Every link, however small, may be of importance in the chain of evidence, and, in default of which, ingenious conjectures backed with authority may become, for want of contradiction, accepted as facts with the result that research is directed into wrong channels and the progress of absolute knowledge delayed."

Persepolis is in the interior of Persia, a little more than 200 miles northeast of Bushire on the coast of the Persian Gulf. Of the many expeditions undertaken to this place, from the standpoint of scientific observation, the one by Mr. Blundell and that by Prof. A. V. Williams Jackson, in 1903, have not been the least in importance. To the work of this latter the reader is referred for a more extended account than can be given in these pages. The work of Lord Curzon, *Persia and the Persian Question* must also be referred to.

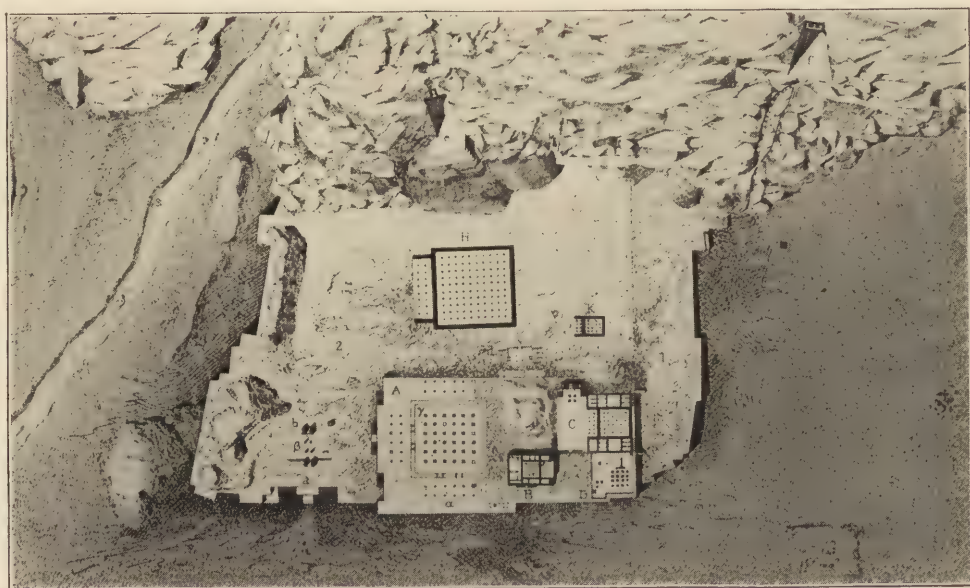
The magnificent terrace or platform upon which are these majestic ruins, is the foundation upon which stood the palaces of those who have borne the title "King of Kings"—Darius, Xerxes, Artaxerxes, and their successors.

Here also Alexander the Great held revel in the deserted halls of his adversary Darius Codomannus, the last of the Achæmenian kings, and in his drunken revelry, as is believed, burned the lordly edifice and the royal library. The configuration of this terrace-height is such that three distinct levels are yet clearly noticeable. The central terrace is 45 ft. in height; that portion forming the south part is 20 ft. in height while the north part is 30 ft. in height. The outline of this elevation is very irregular, a condition which is due no doubt to the original contour of the rocky spur upon which it is built. The area covered is about 900 by 1,600 ft. Over the surface of this platform were spread the architectural glories of the Achæmenians, the original plan and main construction of which had been compared with Baalbec and Palmyra. That Darius was the founder, he himself definitely states in one of his inscriptions that he "built the fortress on a place where no fortress had been built before."

The means of access to this terrace or platform, which must have remained unchanged since the time of Xerxes, is by a great double staircase, the first flight in each comprising 58 steps to a broad landing and the second height 48 steps, with an ascent so gentle and width so broad that a troop of horsemen could ride up 10 abreast.

Near the upper landing of the double staircase to this elevated platform at this point are the colossal winged bulls of stone guarding the "Portals of all Nations," and near the top of whose massive pylons there is a tri-lingual inscription in cuneiform characters stating that the portal is the work of Xerxes.

Two of the original four fluted columns are still standing between the stately piers of this triumphal arch, through which the envoys marched in dignified procession, bearing tribute to the "King of Kings," who received their homage in the great tapestry-hung Hall of Xerxes beyond. Here the coronations and the gorgeous state ceremonials took place, the reception of embassies when the king was seen in solemn state upon his throne, surrounded by his courtiers or taking part in magnificent banquets and amusements as is shown in the sculptures round about. The ruin and desolation since the destruction by Alexander the Great forms a pathetic contrast to the proud vaunt of the king expressed in the cuneiform tablet carved on the stairway of ap-



PLAN OF PERSEPOLIS

a—Grand Stairway *b*—Portal of All Nations. *A*—Hall of Xerxes. *B*—Palace of Darius. *C*—Palace of Xerxes. *D*—Palace of Artaxerxes. *H*—Hall of a Hundred Columns.

proach, "I am Xerxes, the Great King, the King of Kings, King of the Nations with their many peoples, King of this great Earth even to afar," and a sadder comment on the pious fervor of the words that follow, "thus saith Xerxes the Great King: Everything that has been made by me here and all that has been made for me elsewhere, I have made by the grace of Auramazda: may Auramazda with the other divinities protect both my Kingdom and all that I have made."

Ferdinand Justi, in his *Empire of the Persians* (1878), says: "On the southern side Darius had inserted in the wall a colossal block containing a record of the work. It was engraved with a twofold inscription in Old Persian, one in Sasanian (Scythian) and the other Babylonian (Assyrian). At variance with the usual custom, the two last inscriptions are only in part versions of the Old Persian. The first Per-

sian inscription runs as follows: "*The great Auramazda, who is the greatest of the gods, established Darius as King, he has bestowed on him the Kingdom; by the grace of Auramazda is Darius become King. Says Darius the King, the land Parsa which Auramazda has granted me which is illustrious abounding in good horses and in men, has no fear of any enemy by the grace of Auramazda and of me the King Darius. Saith Darius the King, may Auramazda and the gods of my house be my stay and may Auramazda protect this land from hostile armies, famine, and falsehood. May no enemy come into this land, no hostile armies, no famine, and may no falsehood prevail. This grace do I ask of Auramazda and the clan gods, may Auramazda and the clan gods grant me this prayer.*"

The second Persian inscription begins: "*I am Darius the Great King, the King of Kings, the King of these many lands, the son of Hystaspes the Achaemenian,*" then the countries are enumerated and the inscription ends thus: "*Says Darius the King: 'If thou, Auramazda, sayest be it so, then shall I tremble in the presence of no enemy. Protect this nation Parsa, for if the nation of Parsa have thy protection, then will Fortune, who has ever brought the hater to nought, descend as mistress into this house.'*"

The Sasanian (Scythian) inscription translates the introduction of the second Persian inscription and continues: "*Darius the King says: 'Upon this spot is this castle established; hitherto no castle was here established. By the grace of Auramazda have I established this castle and Auramazda and the other gods prompted in me the desire that this castle should be established and I have established it enduringly in all the beauty and perfection that was my pleasure.' Darius the King saith: 'May Auramazda and all the gods protect me and this castle and that which is within this castle. May I never see the wish of an evil man fulfilled.'*"

The Babylonian (Assyrian) inscription contains a paraphrase of the two in Persian.

In one of the doorways of the Great Hall of a Hundred Columns—the largest of these Persepolitan structures—is a bas-relief depicting the combat of the king with a strange monster which he slays in the most unconcerned manner. In another doorway is a bas-relief of majestic conception, portraying the king seated upon his throne receiving the homage of his vassals.

By far the most interesting question with reference to these buildings is their period of occupancy and their destruction by Alexander the Great, evidence of which must lie buried beneath the surface.

The rock-cut tombs, called Naksh-i Rostam, of these Achæmenian Kings lie 5 or 6 miles north of this great platform site where once stood their palaces. This rocky cliff, in which the sepulcher of Darius and those of his son, grandson and great-grandson are carved, resembles a ragged wall of solid rock over 500 ft. long and between 100 and



BAS-RELIEFS, HALL OF A HUNDRED COLUMNS

200 ft. high. The 4 tombs hewn in the bosom of the rock are practically all of the same size and dimensions and absolutely uniform in their exterior design.

The shape of each façade is roughly that of a Greek cross some 70 ft. high and 60 ft. wide hewn deep into the stone. In the middle of each façade a door with decorative lintel is cut, but only the lower half is pierced so as to furnish but a small aperture. Two columns cut in high relief stand on either side of the doorway. They are capped with the heads of bulls after the characteristic manner of the Persepolitan architecture and they support an entablature with ornamental architrave, frieze and cornice forming a base for the elaborately sculptured



ONE OF THE 4 TOMBS OF THE ACHÆMENIAN KINGS
PROBABLY THAT OF XERXES

panel that fills the upper limb of the cross. Here, carved in two rows, one above the other, are bas-reliefs representing the vassal nations as supporting the staging upon which stands the king worshipping before the altar with its sacred fire. By comparing the national garb, the characteristic features and the position of the figures with the names enumerated in the adjoining inscription, we may identify to-day almost every one of the nations represented on the bas-relief. The entrance to the sepulcher is so high from the ground that it is impossible to reach it except by the aid of ropes or ladders.

The tomb of Darius is the only one of the 4 whose identity is positively known. This identification is made certain by means of the two tri-lingual inscriptions, carved near the figure of the king and around the doorway. In some 60 lines the king glorifies Auramazda, enumerates the nations that acknowledge his sway, and exhorts the people not to depart from the "Way which is Right."

The other tombs apparently belong to Xerxes, Artaxerxes, and Darius II, but in the absence of inscriptions we can only surmise how they were occupied respectively.

The monuments of Persepolis suggest that the homage of fire as divine was also an element of the ancient Persian religion.

Near by these rock-cut tombs are two "Fire Altars" carved out of the living stone upon which fancy will easily portray the Magian priest heaping high the incense and the sandalwood upon the sacred flame on some solemn occasion when the Great King, ever mindful of death in the midst of earthly pomp and splendor, came to offer sacrifice at the royal tombs.

THOMAS FORSYTHE NELSON.

Washington, D. C.



PRESERVING WISCONSIN MOUNDS

DR. GEORGE L. COLLIE, president of Beloit College, has described Wisconsin as one of the great world-centers of aboriginal life and industry.

The description must be accepted as essentially true because Wisconsin possessed, at the opening of the XIX century, more prehistoric earthworks than any other state in the Union, or any other known locality of equal area in the world. They existed not by scores or hundreds, but literally by thousands, and embraced a greater number of effigy, or symbolic, or ceremonial or "picture" mounds (such as turtles, lizzards, birds, fish, reptiles, men and quadrupeds) than have been found in all the rest of the land combined.

The large number and frequently great size of these earthworks suggests that the so-called Mound-builders occupied the wide lacustrine basins of Wisconsin for an extended period of time, or swarmed there in prodigious numbers, or pursued the business of raising tumuli with systematic energy.

As the Indian tribes we know will not, and, so far as ascertained, never did work, there seems to be some warrant for thinking that they are not the remnants of the Mound-builders. Therefore, as no information is coming from them concerning these works, whatever knowledge we hope to secure must be derived primarily from the mounds themselves.

For this reason archæologists feel the keenest regret that the great majority of these mysterious monuments of an interesting past have been entirely obliterated, or so far modified by graders, curiosity hunters, and long-continued agricultural operations as to be no longer noticeable by the ordinary observer and of no value to the scientist.

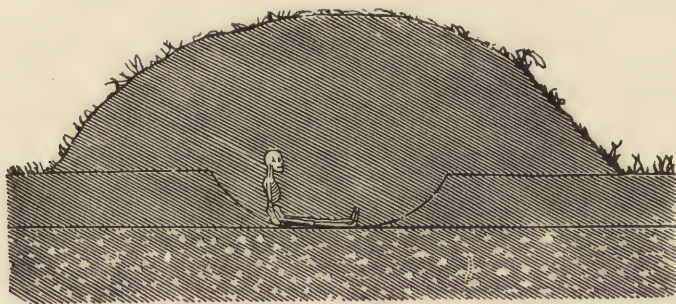
This almost sacriligious destruction began with the first appearance of the Caucasian and has continued to this day. In 1837 contractors graded down, on the so-called East Side of the city of Milwaukee, a ring or amphitheater, uniformly laid out like a race course or circus ring, and oval in shape, that was about 400 ft. in length and 300 ft. in breadth—one of the very rare forms of prehistoric earthworks. In 1838 other contractors on the West Side of the city demol-

ished, for filling, a high "hill," in which were found several human skeletons, a large number of flint and copper implements and utensils, and "two copper camp-kettles."

Wisconsin mounds have produced copper axes, hatchets, awls, fishhooks, bracelets, crescents, spearheads, arrow points, discs, spuds, etc., etc., but, so far as learned, no other specimens of "kettles." It has been claimed that these "kettles" were in the hands of the Olin Brothers until about 1840, and were examined by Increase A. Lapham, the most noted archæologist of the state. Thereafter they disappeared and have not since come to public notice.

Usually, as in these cases, the destroyers have been without archæological knowledge or instincts, and possessed no means of making permanent and accurate records of the contents, shape, size, or location of the works which they obliterated.

Could the case have been otherwise, and especially if the tumuli themselves could have been preserved undisturbed until now, the task of unraveling their history, in the more scientific atmosphere of to-day, would not present so many difficulties.



SECTION OF BURIAL MOUND, NEAR RACINE, WIS.

However, three things seem to have been acceptably well settled, viz: That the Indians with whom the whites first came in contact knew nothing of the origin or uses of the earthworks with which they had been for generations surrounded; that the effigy mounds rarely contained human remains, utensils or trinkets, and that the conical tumuli were hardly ever devoid of human bones, implements or ornaments.

These facts gave rise to the belief, which still has a firm hold, that the pyramidal forms of earthworks were burial mounds only for the more conspicuous warriors, councilmen and chiefs of the tribes, and that the effigies represented the banners, badges or signs of the tribes or gens to which the buried notables belonged.

In some instances, we are told by somewhat untrained authority, several skeletons have been found in a single mound, buried, apparently, two or more above two or more others—as if in layers—and, of course, at different periods of time; but generally where this has occurred the lower remains seemed to be those of a single individual, ac-

accompanied by evidences that the deceased had been interred in a sitting or recumbent posture—sometimes in a completely upright position.

The famous old Sac war chief, Black Hawk (literally Black Sparrowhawk), was buried near the Des Moines River, in 1838, in a sitting position, with a spear or pike in one hand and an arrow in the other. Puncheons or rails of wood were used to prop up the body till it could be covered with earth, but if there has been any other modern burial of that sort no record of it has been found.

Dr. R. P. Hoy opened a large mound near Racine, in which he found the bones of a notable, as he supposed, sitting upright. He made a drawing of a section of the mound, which is herewith reproduced.

About 30 years ago W. W. Randall, United States Consul at Valparaiso, gave an account of burial methods and ceremonies among the Araucano Indians (or Tartars), of Chili, in which he stated that the corpses of common persons were dragged away from the camps and allowed to rot without any further attention, while the body of a dead notable, after it had been thoroughly smoked, was tied to a canoe-like coffin, made by hollowing out a suitable log, set in a hole in the ground amid fantastic and tumultuous ceremonies and then covered to the height of 15 ft. or more with earth brought by the members of his band or following from the surrounding country.

There are great pyramids of stone, adobe and earth in Mexico and Central America; mounds of earth in Bolivia, Peru and Chile, and conical tumuli without number from Lake Winnipeg to the Gulf of Mexico.

Are the Araucanos a remnant of a great mound building people that once occupied this vast tumuli-covered zone?

Wisconsin, which was once the richest area on the continent in prehistoric tumuli, implements, utensils and ornaments, is now taking active steps to preserve the undestroyed and unlooted remainder of her treasures, in order to be able to render more effective aid in answering this and other questions concerning her mysterious earthworks and their builders.

The State University (which lost its archæological collection by fire), is preparing to give a course in archæology. Beloit College is giving such a course and has from 40 to 50 students in the class. Carroll College at Waukesha and some other institutions in the state are preparing to do the same. The reports of the State Archeological Society are printed at state expense; a large mound area at Racine, with tumuli intact, has been dedicated forever to the uses of a public cemetery; the land on which the great "man mound" at Baraboo reposes has been purchased and will be enclosed and parked; fugitive archæological material is being assembled into orderly collections; the so-called Cutler mounds at Waukesha have been acquired by the municipality, and, having been marked by a bronze tablet provided by the Waukesha Women's Club, are preserved as a part of a beautiful public park. The mounds on the campus of Beloit College are protected by a fund do-



CUTLER MOUND AT WAUKESHA, WIS.

nated by Dr. Emerson; the Wisconsin Federation of Women's Clubs has created a Landmarks Committee, which, headed by Miss Julia A. Lapham (daughter of the late Increase A. Lapham), is active in carrying out the purpose for which it was appointed. The Milwaukee Museum is circulating among the pupils of the public schools sets of Wisconsin prehistoric implements and ornaments, accompanied by appropriate explanatory circulars. The extensive collection of the Wisconsin State Historical Society is kept constantly open to the public and available to students; the legislature is being urged to take steps to preserve the remains of the very remarkable prehistoric city of Aztalan; several county historical associations are giving practical attention to the prehistoric remains in their localities, and altogether the state is taking a lead which, though it should have been taken years ago, promises valuable results and ought to stimulate sister states to inaugurate a similar practical work.

FRANK ABIAL FLOWER.

Washington, D. C.

THE AUTOBIOGRAPHIC ELEMENT IN LATIN LITERATURE AND INSCRIPTIONS

PART II

THE poetic epitaphs in turn give voice to much the same ideas as the prose. Thus the larger number of the poems in which the living speak, both pagan and Christian, contain details of the life of the deceased in prose or verse, followed by a poetic *laudatio*. Noteworthy is the following elaborate production from near Rome (C. I. L. VI, 25063, Büch. 1549, Figures 4 and 5):

Ah, fate too cruel! I, a grieving spouse and sire,
Lament two strokes of death, wrought by the mournful god.
It was enough, O Ferryman, to have borne my wife
On your bark, to have her, torn from me, lie in your seat.
Clotho once more decreed the rending of the thread,
That sadly, as before, she might tear my son from me.
'Twere fitting that I first should meet my final doom,
And you, my son, should give me such last offices.
Haste not, you who are bound by similar fates,
So that you, too, may read the years, the names, on the stone.
Twice eleven years she lived, the son indeed twice six,
His name was Probus, hers in turn Athenais.
What wails, for thee, my son, will I, thy sire, arouse,
While the wave doth hold thee prisoner in the Stygian mere!
How well, little one, you bloomed those twice six years,
How men believed my prayers were pleasing to the gods!
Your bright, unspotted thread the Fates rent suddenly
And bore away from me at once my vows and prayers.
When, son, I weep for thee, the Attic songstress wails,
And Siren will attend her, to lament my wife,
And ever with a dying strain the Halcyon mourn,
And e'en sad Echo with me will sound back the dirge,
The Oebalian swan utter with me its low sad notes.

So, also, if the dead speak, the poetry is of the same tenor as the prose. Commonly we have a narration of autobiographic details and self-laudation; for these as early as the II century B. C., two types had been developed at Rome. These types, otherwise alike, differ essentially in one respect, that the first never addresses the passer-by, the second always does so, either at the beginning or end, or both.

The first type was favored by the higher officials. Our first datable epitaph, written for one of the Scipios in 138-7 B. C., (C. I. L. I, 38—VI, 1293, Büch. 958), is of this kind. It reads:

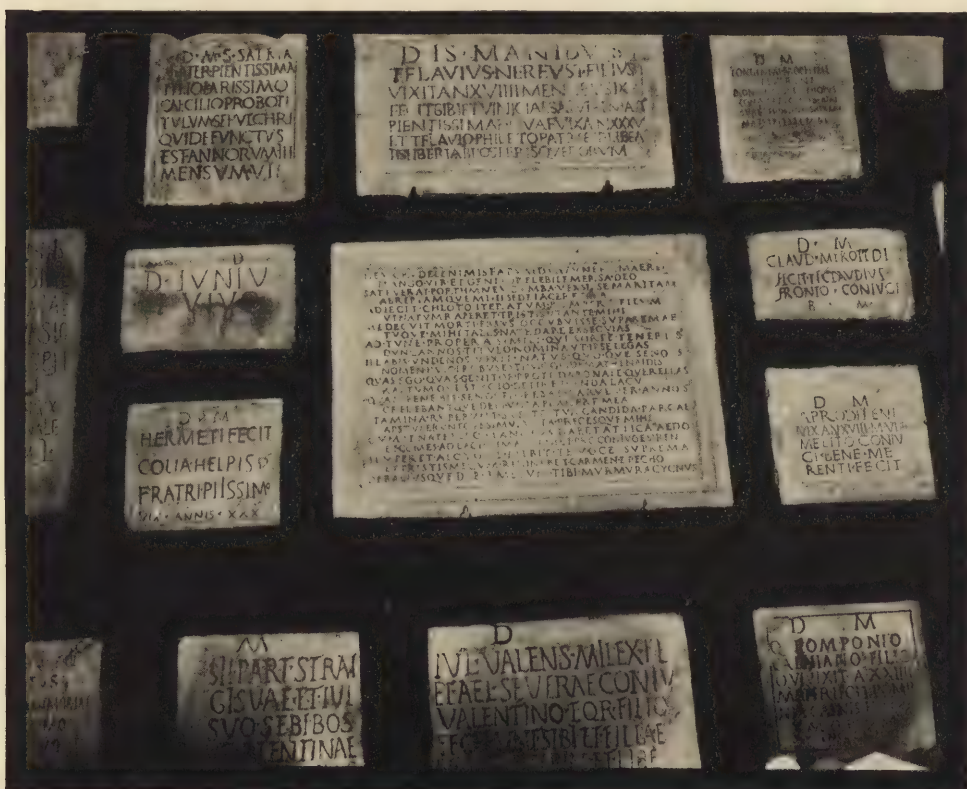
Gnæus Cornelius Scipio Hispanus, son of Gnæus, prætor, curule ædile, quæstor, tribune of the soldiers twice, decemvir for judging suits, decemvir for performing holy rites.

By my worth the virtues of my race on high I piled,
Offspring I bore, vied with my father's fame.
My elders gave me praise, glad that I was their child;
My glory added honor to our name.

The earliest example on stone of the second type fully worked out runs (C. I. L. VI, 33919a, Büch. 848):

O youth, although you haste, this little stone
Begs that you look, then read what's writ thereon.
Here do the bones of Lucius Mæcius lie,
The goldsmith, Philotimus. This did I
Desire for fear you might not know. Good-bye.

This last, it will be observed, is the same as the supposed epitaph of the poet, Pacuvius, found in Gellius, barring the name; but, as Bormann has conclusively proved,⁴ we must not think for a minute that



ELABORATE POETIC EPITAPH OF PROBUS AND ATHENAIS, CAPITOLINE MUSEUM, ROME. [FIG. 4.]

Pacuvius originated this poetic form. The so-called epitaphs of the poets, Plautus and Nævius, have long since been shown not to be the work of their reputed authors; no more, it is now clear, had Pacuvius anything to do with the "epitaph" bearing his name, which is a poetic type prevalent in his time.

A few briefer epitaphs that do not follow one of these poetic types need not be mentioned in detail, as they express the same familiar ideas common to the formulæ and individual prose epitaphs.

⁴Die Grabschrift des Dichters Pacuvius und des L. Maecius Philotimus, in *Archäologische-Epigraphische Mittheilungen*, vol. 17, (1894), pp. 227-239.

Apart from dedications and epitaphs, inscriptions containing autobiographic elements are few. Hardly any honorary inscriptions have them; and in large numbers of others, as private documents like the wax tablets of Pompeii, and marks on various small objects, as pottery, collars of slaves, and the like, the autobiographic expressions are stereotyped.

But two kinds of the inscriptions remaining are of paramount importance. First, there is a class not hitherto separately noticed, that may be called autobiographic records. They are varied in content, but all have the same purpose as that of the first class of literary



VIEW OF WALL WITH THE EPITAPH IN 4 (UPPER L. HAND CORNER),
SHOWING A VARIETY OF TOMBSTONES AND CINERARY
URNS, CAPITOLINE MUSEUM, ROME. [FIG. 5]

autobiographies, simply to give information that reflects credit on the persons named. Some present details of the construction of public works, others requests regarding tombs, still others from *Salonæ*, the performance of religious duties. But the most valuable is the so-called milestone of Publius Popilius, already mentioned (C. I. L. I, 551—X, 6950); as it is the first Latin prose autobiography known, I translate it in full:

I made the road from Rhegium to Capua, and on that road made all the bridges, milestones, and courier stations. From here to Nuceria it is 51 miles, to Capua 84, to Muranum 74, to Consentia 123, to Valentia 180+, to the strait

at the statue 231+, to Rhegium 237, total from Capua to Rhegium 321+. And I also, as prætor in Sicily, sought out the runaway slaves of the Italians, and returned 917 men. And I also first brought it about that the shepherds should withdraw from the public lands in favor of the farmers. I made here a forum and public buildings.

To this class of autobiographic records I should assign the Monumentum Ancyranum. The inscription, of which this is a copy, placed before Augustus's tomb as an *index rerum a se (me) gestarum*, related in a way that supplemented his earlier literary memoirs, the events of his reign, as Popilius 150 years before wrote his humbler record on stone, and placed it in a similarly conspicuous position.

The *graffiti* form a second and even more interesting class. Two groups of them have less of a transitory character than the others. Ancient "globe trotters," like modern ones, wanted people to know that they had been to see the sights; thus on the famous statue of Memnon, many Roman soldiers left their names and dates, with *audi Memnonem* and the like, some even invoking the Muse. And elsewhere, in Egypt, at Talmis, Thebes and Philæ, people left records of their visits; while one man has touchingly written on one of the Pyramids (C. I. L. III, 21, Büch., 270):

I saw the Pyramids without thee, brother most dear,
And here, as best I might, for thee dropped a sad tear;
And this lament I carve, to keep our grief ever bright.
May the name of Gentianus upon the Pyramid's height,
(The pontiff, at thy triumphs, Trajan, close by thy hand,
During three decades censor, consul), thus ever stand.

Again, at Rome and Ostia, the firemen, having performed an unpleasant duty, wish all to know it; so on the walls of their barracks they have scratched inscriptions like this (C. I. L. VI, 3075):

In the third consulship of our lord, the Emperor Alexander (229, A. D.), I Terentius Felix, of the century of Aulus, faithful to their divine majesty, performed the *sebaciaria* (whatever that is) for the month of May; safety to my fellows!

Apart from these two classes we have in the *graffiti* only glimpses of the business of an hour or the momentary thought. The prose is a queer mixture, simple notices that "I, so-and-so, have been here," notes of repairs to shoes, sums won at dice (honestly, the winner assures us), a laundry list, greetings and wishes, a fragmentary letter, recommendations of candidates, even in a tomb an imaginary dialogue between dead and living. The poetry, if not sententious, deals with the tender passion, and certainly gives us an insight into the minds of those who wrote it. For instance, it takes no great stretch of imagination to picture the state of mind that brought forth this (C. I. L. IV, 1824, Büch., 947):

Come here, you that love, Venus' ribs I will crack
With a cudgel and wear out the dear goddess' back.
If that tender organ, my heart, she can prick,
Why may I not smash in her head with a stick?

Our conclusions may be briefly stated. The Romans possessed the autobiographic feeling to a remarkable extent, as shown in the literature and the inscriptions. In the literature, this led to the development of autobiography as a literary form rather late in the II century, B. C. In the inscriptions this feeling is displayed earlier and on a much wider field, as all classes employ autobiographic elements, not merely a few nobles or Emperors. On the other hand, in the inscriptions, especially dedications and epitaphs, a natural tendency to formulæ and religious conservatism tried to confine this feeling to simple variations between personal and impersonal expressions in the regular epigraphic forms and to a series of new autobiographic formulæ; further, the common people are capable of only a few well-worn ideas, and apply to professional stonecutters and poetasters for the literary forms of their inscriptions, which tend to become stereotyped. But the feeling easily prevails over all, and, though often curbed, is always present; so from the Monumentum Ancyranum to the hasty scrawls of idlers, it is a characteristic feature of the epigraphic records, which makes their authors seem less classic and more human.

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PRE-INDIAN INHABITANTS OF NORTH AMERICA¹

PART I

ALTHOUGH we have no relics of a race [in Minnesota] earlier than the earliest quartz-workers at Little Falls, who were cotemporary with the closing scenes of the latest of the Glacial epochs, we are compelled to admit that those quartz-workers had an earlier ancestry, and an existence which extended far into the ages which are, in geological terms, denominated Glacial and Pleistocene. Without, at present, going into the question of their origin, and of their chronologic relations with those earliest people, who inhabited Asia and Europe in Glacial and Pleistocene time, it will be germane to our purpose to refer to some American evidences of the existence of man in Glacial and Pleistocene time.

PLEISTOCENE TIME

For the purposes of this chapter it may be stated that Pleistocene time was a long period of comparative quiet, following the close of the Tertiary volcanic violence, when many of the mountain ranges and of the stupendous phenomena of the continent had their birth. The forces

¹This paper constitutes a chapter by Prof. N. H. Winchell, in a more elaborate work in preparation on the *Aborigines of Minnesota*. It is here published by permission of the secretary of the Historical Society of Minnesota.

which gave origin to these features of the continent became dormant, or at least quiescent, and at the present day they are manifest only in a few volcanoes that retain their heat, and in the occasional earthquakes that show that the mountains are not yet finished. This long period of time (Pleistocene) was terminated with the remarkable Glacial epoch, or epochs. It is in the products of the Glacial epoch that are found the remains of man, and of his manufacture. These evidences of earliest man in America have been vigorously scrutinized and questioned by some authorities, and have been reasserted, as well as increased, by later special examinations by others. The evidence has constantly grown more voluminous and convincing. At the present day it seems that the existence of man in America in Glacial time is well-nigh established. If it were fully established, that would imply pre-Glacial, *i. e.*, early Pleistocene, man, during which period flourished also many large mammals, now extinct.²

There is a formation of Pleistocene time, peculiarly American, designated *Equus beds*, which has furnished, according to Cope and Williston, some human remains,³ and these are believed to be the oldest human remains that have been recognized in America. They are associated with the remains of certain extinct animals. They have been described in Oregon, Texas, Kansas, Nevada, Colorado, and the valley of Mexico. The *Equus beds* cannot be distinguished physically from the loess, in which most of the same fossils have been found. Geographically, they seem to be restricted to the area south of the terminal moraine of the Wisconsin epoch of glaciation. The fossils show that at that period lived the bison, mammoth, megalonyx, mastodon, camel, llama, peccary, moose, and extinct species of horse; and some of these survived into Glacial and even post-Glacial time. These beds are regarded as the equivalent of the *Megalonyx beds*, and are also probably cotemporary with the *Megalonyx* and other fossils found in some caves.⁴ These beds were at first referred to the Pliocene, the latest of the Tertiary, but on the recognition of the interglacial epochs of the Glacial period, which were accompanied by desiccation, alternating with ice-incursions, which were epochs of flooding, it appears more probable that the stratified beds holding these remains belong to some of the epochs during which the country further north was covered by glaciers. According to Udden, the *Megalonyx beds* are contemporaneous, "at least to some extent," with the *Equus beds*, and a remnant, at the point where they were examined by him, in central Kansas, "of the last general deposits of the plains in this region." Mr. F. W. Russell has described⁵ a similar loess-like deposit in Nebraska, and Prof. L. E.

²Those who desire to consult authorities on the existence of Glacial man in America, we would refer to the Bibliography which will be published at the end of Part III of this article in July, 1907.

³Cope. *Tertiary Vertebrata*, p. 4; *American Geologist*, Vol. 2, p. 293, 1888; Williston. *Kansas University Geological Survey*, Vol. 2; also *Trans. Kansas Acad. Science*, 1897.

⁴Merriam and Putnam, in *American Anthropologist*, Vol. 8, 1906.

⁵Russell. *American Geologist*, January, 1891.

Hicks,⁶ "an old lake bottom." A "forest bed" lies at the bottom of this deposit described by Mr. Russell, on the Middle Loup fork, and under the forest bed in a red clay, apparently Glacial. In some places, however, the red clay is wanting, and the forest bed there is immediately above beds that are Tertiary. This formation is in the valley, as low as the river, except where Tertiary beds remain to take its place.⁷

GLACIAL TIME

The Glacial epoch, which may be considered a part of the Pleistocene, was characterized by the occurrence of glaciers at temperate latitudes. It was formerly thought that Glacial time was short and simple, but it has been found to be long and complex. Glaciers covered Minnesota not once only, but twice and thrice, at least, and between them were interglacial epochs. The scheme of glacier succession has been made out most definitely in Iowa, by the geological survey of that state, and by Mr. Frank Leverett in states further east for the United States Geological Survey. It is necessary here to state only the results of these studies, though they have entailed a long and laborious research, in which the various states and numerous geologists have participated, the details and progress of which can be found by consulting the official reports and the geological journals issued during the last 30 years.

Following is the table of Glacial and inter-Glacial stages, as published by Prof. S. Calvin, of the Iowa survey:

First Glacial stage: Pre-Kansan, or sub-Aftonian. *First inter-Glacial stage:* Aftonian.

Second Glacial stage: Kansan. *Second inter-Glacial stage:* Yarmouth, in Iowa, Buchanan.

Third Glacial stage: Illinoian. In Iowa, Buchanan. *Third inter-Glacial stage:* Sangamon. In Iowa, Buchanan.

Fourth Glacial stage: Iowan, which formed the main loess deposit. *Fourth inter-Glacial stage:* Peorian.

Fifth Glacial stage: Wisconsin.

In Minnesota some of these distinctions can be identified in general terms, but the geographic areas of the deposits of different ages have not been traced out. The most of the state is covered by drift of the Wisconsin Glacial epoch. It was characterized by the formation of the terminal moraines which are well known in the state, and which extend across states further east, and to the Atlantic seaboard. Immediately below the Wisconsin drift has been found in many places an older sheet of till.

⁶Hicks. *Bull. Geol. Soc. Am.*, Vol. 2, p. 25.

⁷In *Science*, Vol. VII, 386, Dr. G. K. Gilbert maintains that the *Equus* fauna "belongs to the upper Quaternary (late Glacial) and not to the upper Pliocene, where it had been assigned by students of vertebrate paleontology."

Professor Calvin says of the Wisconsin drift:

It is very much younger than the Kansan or pre-Kansan. There is an enormous interval between the earliest and the latest of the ice-invasions. The earlier Glacial and inter-Glacial stages seem to have been longer than those of later date. Some of the inter-Glacial intervals were many times as long as the period which has elapsed since the disappearance from Iowa of the great ice-fields which characterized the Wisconsin stage of glaciation. If the time since the Wisconsin is taken as unity, the time since the Kansan is at least 20. The history of glaciation in Iowa is long; the records are exceedingly complex.

During this succession of great physical changes it is apparent that the denizens of the land suffered great climatic fluctuations. They became extinct or migrated to the south. Man, if he lived in America at the time, gradually moved southward as the severity of the seasons increased, and, on amelioration of the climate, he as gradually retraced his steps, accompanied, in each inter-Glacial epoch, by his associates both in fauna and flora.

The time involved in these migrations has been computed roughly in years by assuming post-Glacial time as unity. This unit has been agreed upon nearly unanimously by geologists as about 8,000 years. The time elapsed since the Kansan epoch, according to the ratio given by Calvin, would thus amount to about 160,000 years. If allowance be made for the Aftonian inter-Glacial epoch and for the pre-Kansan Glacial epoch, it would not be an overestimate to say that the first ice-invasion advanced upon the temperate latitudes at least 200,000 years ago.

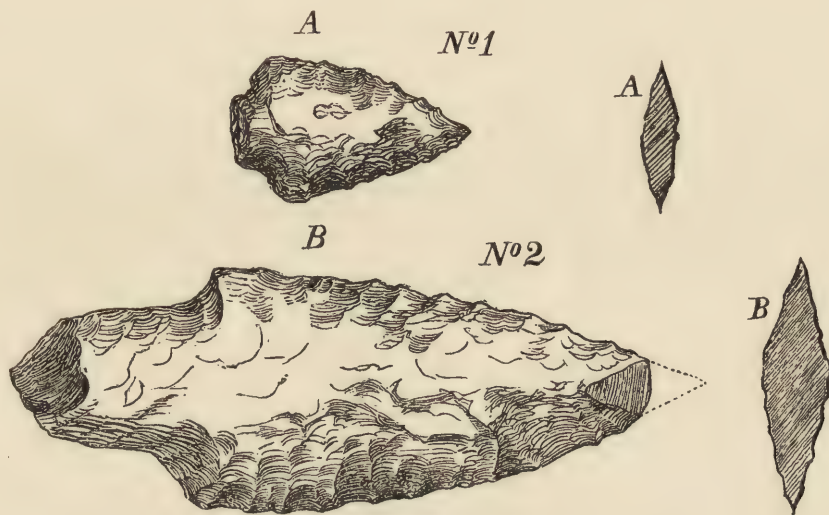
This element in the history of human habitation in North America becomes more and more important as the remains of man's industry and of his bony skeleton sporadically come to light in the drift deposits.

If we except those problematical evidences of man found, as already referred to, in the *Equus beds*, and discard all claims that have recently been put forth, of the discovery of man in the Tertiary in other parts of the world, we have still a very respectable antiquity for man in America, based on actual discoveries.

MAN IN THE GLACIAL PERIOD

THE IOWA LOESS.—In 1874 Prof. S. Aughey described the discovery of human implements in the loess deposits of the Missouri Valley. This deposit is a dependency of the Iowan Glacial epoch, formed about the southern margin of the continental glacier of that epoch. Its relation to the *Equus beds* is not established, but it is presumed to be later in date. These implements, one of which was said to lie immediately beneath an elephantine vertebra, according to McGee, "appear to have been dropped on the bottom of the shallow lake, or muddy swamp, within which the loess was accumulated. Since the loess itself consists of Glacial mud, and since the basin, in which it was deposited was bounded on the north by the Quaternary *mer de glace*, the climate must have been cold, and the associated elephantine remains

prove the association of man and the mammoth. The relics themselves throw little light upon the habits of their makers, but suggest that they were well advanced in the fabrication of chipped implements."⁸ They seem to have been as far advanced in this art as the pre-Columbian Indians of America. Numerous similar points are found in Minnesota, the product of the present Indian.



ARROWS FROM THE LOESS

Arrows found in the Loess; after Hayden, No. 1 was found 3 miles east of Sioux City, in Iowa, 15 ft. below the surface, No. 2 was found $2\frac{1}{2}$ miles southeast of Omaha, in Nebraska, 20 ft. below the surface, and beneath a vertebra of an elephant. These places are in the immediate valley of the Missouri river, but north from Lansing, Kans. (See Hayden's report on Colorado, 1874, p. 255.)

A chipped obsidian implement was found by McGee in 1882, imbedded in a similar sediment in the valley of the ancient Lake Lahontan, in western Nevada. This ancient sediment was cotemporary with a glaciation whose abundant waters filled the valley with a saline-alkaline lake.⁹ It is represented by the figure below, natural size. "In material, size, general form, mode of chipping, and freshness in appearance it is undistinguishable from the arrow points in use to-day by the Piute Indians of the vicinity. It should be mentioned that this fresh aspect is paralleled by that of the fossil bones found in the same stratum of white silt. These bones are perfectly white, not at all mineralized, and, when found in fragments, not readily identifiable, may easily be discriminated from long-weathered recent bones by their greater porosity and less weight."

⁸*Popular Science Monthly*, Vol. 34, 1885, p. 27.

⁹*An obsidian implement from the Pleistocene deposits in Nevada*, *Am. Anthropologist*, Vol. 2, p. 301, Oct., 1889.

The age of the Nevada arrowhead, according to Russell and Gilbert, seems to have been that of the last, or Wisconsin, ice-incursion; and in this case also the arrow-maker was well advanced in the art. The fossils associated with this silt-stratum, seem to indicate, however, the age of the *Equus beds*, which tends to make the silt Iowan, or earlier, rather than Wisconsin, and thus to be rather a cotemporary than a successor of the implements found by Professor Aughey in the Missouri River loess.



OBSIDIAN ARROWPOINT FROM THE NEVADA LOESS. WALKER VALLEY, NATURAL SIZE. AFTER M'GEE

There have been a number of other discoveries of human remains in the loess of the Iowan epoch. According to a calculation by Professor Aughey, based on the extent of this deposit and the rate of accumulation of river sediment in small marginal lakes adjoining the present Missouri River, the Loess age had a duration of 19,200 years. Such a lapse of time, or even one-half that length of time, is sufficient for the burial of many human implements and human skeletons, and numerous remains of the great quadrupeds cotemporary with them. It may be expected, therefore, that such discoveries will be multiplied in the future. Other instances are given below. Part of these discoveries lack some elements necessary to make them perfectly satisfactory and convincing, but taken as a group, it is not easy to discard the result toward which they point—the more so as they are corroborated by other discoveries that are well authenticated. As long as a few isolated discoveries stood alone unverified it was customary to hang a doubt on the lacking elements, and to discard them simply as insufficient proof of the presence of man in the age of the loess. That was the conservative habit of archæologists.

Some years ago (1878) a fossil human skull was found by Thomas Belt, in what was supposed to be the western extension of the loess in Colorado.¹⁰ It was found near the watershed between the South Platte River and Clear Creek. It was in "undisturbed loess," in a railway cutting, about two miles from Denver. "All the plains are

¹⁰*Eleventh annual report of the Peabody Museum of Archaeology, Cambridge, p. 257; Vol. II, of the reports of the Museum, 1880.*

covered with a drift deposit of granitic and quartzose pebbles overlaid by a sandy and calcareous loam, resembling the diluvial clay and the loess of Europe. It was in this upper part of the drift series that I found the skull." "Belt's untimely death prevented final statement of the geologic position of the Colorado skull." (McGee.)

McAdams has reported the finding of a stone axe 70 ft. beneath the surface in loess, in Illinois.¹¹ This is vouched for by 3 sworn affidavits. The simple recital of the details of this find is of itself evidence of its trustworthiness.

Witter, in 1892, described the finding of arrow and spear points in the loess at Muscatine, Iowa, accompanied by land shells, the bones of at least two American reindeer, elk, and a fragment of an elephant's tooth; and Professor Calvin referred, in the discussion of these,¹² to arrowpoints found in the loess at Council Bluffs some years ago.

The great loess sheet being of the age of the Iowan drift epoch, as stated by all geologists who have investigated its relations to the drift deposits, the finding of a human skeleton at the bottom of the loess near Lansing, Kans., 1902,¹³ proved to be one of the most convincing proofs of the great antiquity of man in America. This was on the bank of the Missouri River, on the farm of Martin Concannon, in the excavation of a tunnel, at 70 ft. from the entrance of the tunnel, and about 23 ft. below the natural surface. The skeleton lay in the geest¹⁴ of the pre-loessian epoch, but probably was not much older than the loess of the region, and associated with the skeleton, but lying a little higher was found an artificial chert chip.¹⁵ According to Prof. W. Holmes and Mr. Alex. Hrdlicka,¹⁶ the characters of this skull are not such as to indicate a low order of intelligence, and are perfectly comparable to the skulls of the present Indian. This agrees with other loessian human relics in showing that the Iowan Glacial man was capable of the fabrication of implements equal to those of the modern Indian. At that date nothing in art has yet been discovered in America indicating an inferior type of man.

As the Lansing skull has become celebrated for the importance and completeness of the testimony it bears to the existence of man in, or before, the Iowan epoch, it is illustrated by two plates made from photographs which first appeared in the *American Anthropologist*, and later in the *American Geologist*.

The "Clayton stone axe," so-called, was discovered, according to the statement of Dr. Cyrus A. Peterson, in RECORDS OF THE PAST, vol 2, p. 26, 1903, below 14 ft. of common loess, near Clayton, Mo., 15

¹¹*Ancient mounds of Illinois*, Am. Assoc. Adv. Sci. XXIX.

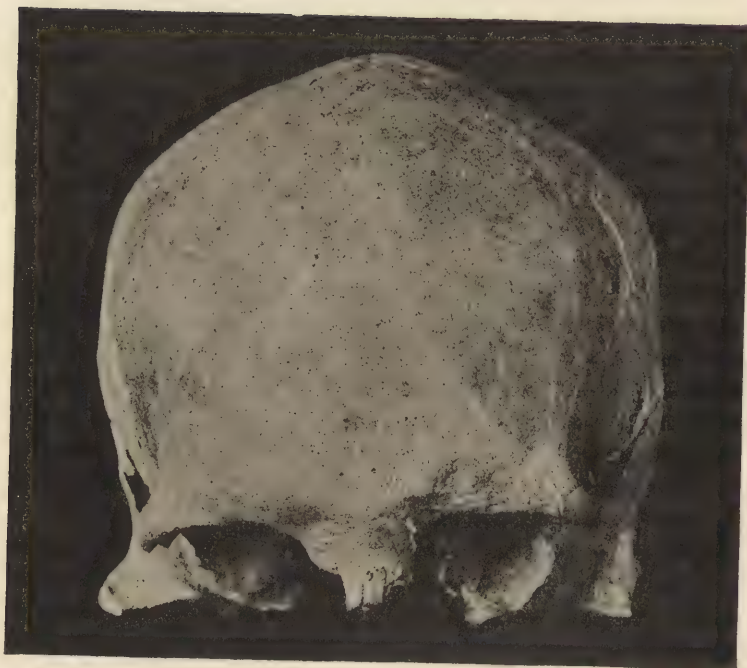
¹²*Iowa Academy of Science*. Sixth annual session, Dec., 1892; *Science*, Vol. 19, (1896), p. 22; *Am. Geologist*, Apr. 1892, Vol. 9, p. 276.

¹³Williston, *Science*, August 1, 1902; Upham, *Am. Geologist*, Sept., 1902, and RECORDS OF THE PAST, Sept., 1902.

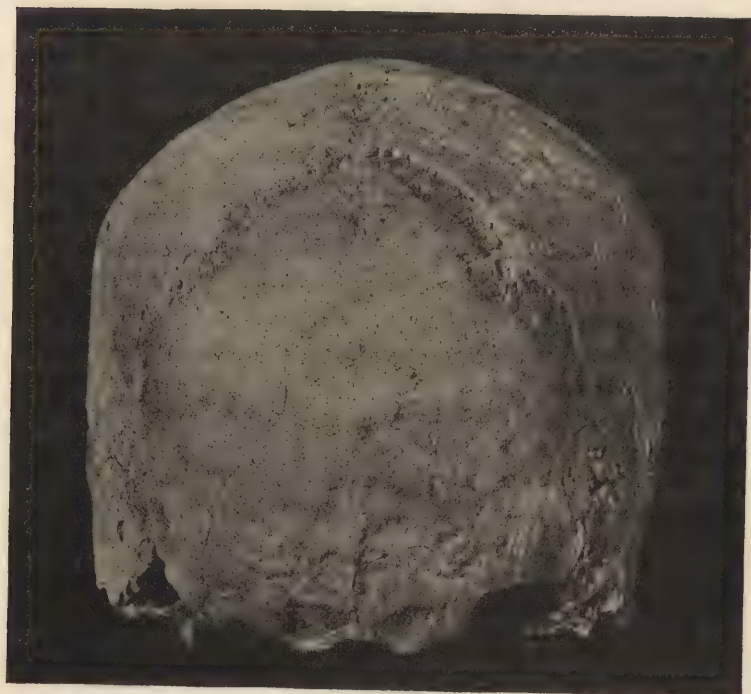
¹⁴Geest is the surface residuum of the natural decay of rocks *in situ*, and in this instance was chiefly a kaolinic clay.

¹⁵*American Geologist*, Vol. 31, p. 298, 1903.

¹⁶*American Anthropologist*, Vol. 4 (U. S.), Oct.-Nov., 1902, and Vol. 5, Apr.-June, 1903.



a



b

THE LANSING SKULL (FRONT AND BACK VIEWS)



d
THE LANSING SKULL (SIDE AND TOP VIEWS)

miles from St. Louis. It is a smooth, "hafted" implement, 5 in. long, $3\frac{1}{4}$ in. wide, "and shows evidence of use both on the poll and on the edge."

Miss Luella Owen, in 1899, published an account of the finding, in 1897, of a large stone axe imbedded in the loess of the bluff on the west side of the Missouri River, near Atchison, Kans., and 20 miles south of St. Joseph, Mo.¹⁷ It is an unusually large implement of its kind, weighing $7\frac{1}{2}$ pounds, grooved and polished, and was 4 ft. below the natural surface, and about 240 ft. above the low water mark of the Missouri. It was at a stone quarry, and about 4 ft. of loess intervened between the axe and the surface of the rock. Immediately above the rock, however, was a foot of clay, apparently formed by disintegration



STONE AXE FOUND BY MISS OWEN, NEAR ATCHISON, KANS.

of the limestone in place. Pieces of the limestone associated with the axe had the appearance of having been burnt, indicating the former existence of a camp fire. The fact and the circumstances of the discovery of this stone are protected from discredit by the legal affidavit of the foreman of the quarry. There is no higher point in the vicinity. The surface of the bluff slopes both to the west and to the north, and it is easily seen that the axe could not have been buried by "wash." The appearance is that the loess is in its original condition, and hence that the axe dates from the accumulation of the loess, which was at the time when the Iowan ice-sheet was still extant over Minnesota. This is certainly a "neolithic" implement.

In 1885, an important discovery was made at Madisonville, Ohio, by Dr. C. L. Metz. The specimen consists of an implement chipped from a pebble of black flint, taken from gravel 8 ft. below the surface,

¹⁷*Souderabdruck aus dem Verhandlungen des VII internationalen Geographen-Kongresses in Berlin, 1899, pp. 686-690, The Bluffs of the Missouri River.*

but immediately overlain by loess. It is probable that the implement does not much antedate the loess, although it is said to have been found "just below the surface of the gravel." It is of the type of the specimens from the Trenton gravels, and that fact indicates its Wisconsin age. With the data at hand it is impossible to determine whether the gravel referred to belongs to the flood stage of the Iowan or the Wisconsin ice-epoch. It is represented by the cut below.



CHIPPED PEBBLE OF BLACK CHERT FROM MADISONVILLE, OHIO,
8 FT. BELOW THE SURFACE

In 1887, Dr. Metz made a similar discovery at Loveland, Ohio, 30 ft. below the surface, in a deposit of sand underlying very coarse glacial gravel, which latter must be attributed to the Wisconsin epoch. This implement was not far removed from bones of the mastodon.¹⁸

In the *American Anthropologist*, vol. VIII, p. 42, 1905, Mr. A. E. Sheldon records and carefully describes ancient fireplaces found in the bad lands of South Dakota, imbedded in the strata that constitute the bluffs of the Lost Dog Creek, in the Pine Ridge Indian Reservation. This creek enters White River from the southwest, not far below the mouth of Wounded Knee Creek. These fireplaces, of which 7 have been discovered, are accompanied by kitchen refuse, fragments of pottery, and arrow points.

The soil above these fireplaces exhibits from 8 to 12 distinct strata, each 4 in. to 15 in. in thickness and varying in substance from black loam to yellow gumbo clay and soft sandy grit. A careful vertical section of these strata was taken out and is now preserved in the museum of the Nebraska Historical Society at Lincoln. It was observed that the stratum of soil at the level of the fireplaces was uniformly of a black humus material, with stray root-fibers here and there, indicating clearly that this was the surface of the ground at the time the Indians built the fires and scattered the debris from their kitchens. One or two feet above this layer of black soil is a thick stratum of fine gray silt, indicating a deposit in comparatively still water. Scattered thickly through the silt are the shells of several varieties of periwinkle and other fresh water mollusks.

¹⁸*The Ice Age in North America*, Wright, p. 532.

According to the description of the region given by Mr. Sheldon, these strata were formed when the Lost Dog Creek, and consequently the valley of the White River, was buried under a wide expanse of still or gently moving fresh water. That would imply that all the valleys of the region must have been similarly buried under a sheet of fresh water, which drained toward the Missouri. It would seem to imply also that the Missouri River was in a similar condition—a condition identical with that during which was deposited the well-known loess which formerly filled and still occupies that valley, and in which have been found, as already noted, other relics of human habitation of a type similar to those of the present Indian.

We do not know what may be the age and nature of the strata forming the bluffs of Lost Dog Creek, below the level of the little relic-bearing stratum.¹⁹ If they are of the Cretaceous or Tertiary, as is quite probable, the ancient surface on which was accumulated the humus soil where these relics occur, was doubtless pre-Iowan, and the strata that enclose and bury them are Iowan loess. If the underlying strata are neither Cretaceous nor Tertiary, but consist of loess similar to the strata that overlie the ancient soil, then the human relics could be referred to the pre-Wisconsin inter-Glacial epoch. But as the Iowan was pre-eminently the loess-forming epoch it is much more likely that these relics are pre-Iowan. They agree in type with those already mentioned from the loess in pointing to a race of men not at all inferior to the present Indian. An examination directed to the determination of the nature and extent of the non-conformity denoted by the humus layer, would doubtless result in reaching some interesting conclusions. At Lansing the Iowan loess is non-conformable upon the carboniferous rocks, although both formations are nearly horizontal.

Still later, and quite recently Prof. F. W. Putnam has described bone fragments taken from ancient caves in California, which show evidence of human working. The associated other fossil bones are of an extinct fauna that marks the age of the latter half of the Pleistocene, comparable with the Iowan Glacial epoch.

Lastly, in the year 1906, human bones were reported from the undisturbed loess of Nebraska, near Omaha, the region in which, in 1874, Aughey reported the discovery of arrow points in the loess. A succinct and lucid description of the conditions of this discovery was given in *Science*, January 18, 1907, by Prof. E. H. Barbour, who thoroughly examined the spot.²⁰ A curious circumstance attends this case,

¹⁹Dr. A. C. Peale in *Science*, Vol. VIII, p. 163, seems to describe the area of north-west Nebraska, and hence the area of the fireplaces of Sheldon, as "Loup Fork Tertiary," a formation which terminates upward by gently blending into the post-Pliocene of Hayden, which latter beds were accumulated in fresh water. The Loup Fork contains abundant vertebrate remains. Hayden defined the Loup Fork as extending southward from Niobrara river, which is next south of the White river. Ancient hearths in the alluvium of the Missouri river, attributed to the modern Indians, have been described by Dr. W. J. Hoffman, *Pros. Bost. Soc. Nat. Hist.*, Feb., 1876.

²⁰See also *The Nebraska Loess Man*, by Gilder, and *Ancient Inhabitants of Nebraska*, by Barbour, in *RECORDS OF THE PAST*, Feb., 1907.



FLINTS AND POTSHERDS FROM LOST DOG CANYON FIREPLACES, PINE
RIDGE RESERVATION, SOUTH DAKOTA

viz: There are human remains of two ages, one directly above the other. The lower bones are in "undisturbed loess," and seem to be extended over a considerable area, from 6 to 12 ft. below the surface of the loess; directly over them, and at the summit of a hill formed by drainage circumdenudation, the aborigines had constructed an earth-mound, which also contained human bones. The loess bones were dissociated, scattered, and fragmental. The skulls are distinctly neanderthaloid.

NEWTON HORACE WINCHELL.

St. Paul, Minn.



PALESTINE EXPLORATION

THE delay in getting from the Turkish government leave to excavate was never so long as in this case. It seemed as if it was never to come, and subscribers to the work of the Palestine Exploration Fund were much discouraged. Even when it was granted, the illness of the London secretary prevented the word being promptly sent to America. But now the trouble is over and Mr. Macalister is at work again. Of this the London circular, which I shall gladly send to inquirers, speaks as follows:

When Mr. Macalister commenced work at Gezer, no one expected that he would find the untouched cremated remains of a cave-dwelling race which was not acquainted with metal, or the undisturbed dead of one of the Canaanite tribes with their bronze weapons, and food vessels of hand-made pottery, or a Canaanite "high place" with the bones of newly-born infants who had been sacrificed, apparently, to some unknown deity, or the bones of infants buried under the corners of house walls. Yet these unique discoveries have been made, and others which have supplied a chronological starting-point for the archæology of pre-Israelite Canaan, and have thrown light upon the domestic life of the Amorites and of the Israelites under the judges.

By the expiration of the time for which the late "permit" was granted, the excavations ceased, in the autumn of 1905. A new permit was shortly after applied for, and was granted in February last. The Committee felt that, having already opened up so much of the site, with good results, and having ascertained with some accuracy the position of the city walls and gates, it would be a pity to leave more than half its area unexamined. They therefore decided to pursue their investigation of the remaining site, leaving Mr. Macalister some discretion as to examining the surrounding hillsides within the limits of the permit. He has now begun again in earnest this second period of his researches at Gezer.

With the decision to continue work at Gezer all will agree there must be no more hasty work as at Lachish, where a tablet was found just as the first permit expired, and no other was sought for. We can learn more from one *tell*, thoroughly explored, than from many slightly excavated. So now all is happy expectation again, and the *Quarterlies* will be read with an interest which they can never have in the intervals of permits.

I am pleased to learn that an elaborate study of the Samaritans, on which Prof. J. A. Montgomery, of Philadelphia, has been engaged many years, is ready for publication. It is a difficult subject, calling for patient and extensive research, but of this the author is fully capable. It will be a book of 400 pages, fully illustrated.

THEODORE F. WRIGHT.

42 Quincy St., Cambridge, Mass.



EDITORIAL NOTES

SPHINXES NEAR SERAPEUM.—Near Serapeum, Northern Africa, a number of interesting sphinxes with fine female heads, have been found. With them were funeral masks of marble to which beards and hair of stucco were attached.

INTERNATIONAL ARCHÆOLOGICAL CONGRESS.—The notice of the next International Archæological Congress, given in our April issue, should have read, "The next Congress will meet in Cairo, from April 10 to 20, 1909."

PUEBLO VILLAGES NEAR SANTA FE, NEW MEXICO.—Near Santa Fe, N. Mex., are a number of ruins of Pueblo villages lit-

tle known, but whose excavation would doubtless be of great archaeological value. Three or these, one at Agua Fria, southwest of Santa Fe; one on the Arroyo Hondo, just south of Santa Fe, and the other at Tesuque, north of the city, are upon very ancient sites, located by walls which jut out of the debris. Pottery and other remnants of Pueblo civilization have been found, but no systematic excavations have been carried on.

MOUNDS IN THRACE.—G. Seure and A. Degrand describe certain mounds in Thrace, which differ from the ordinary *tumuli*, resembling more the Asiatic "tells." Four of the 7 known have been explored carefully, showing clearly that they were burial mounds. The bodies were burned, the ashes wrapped in layers of clay, surrounded by vases and offerings, and the whole covered with clay and burned. The mounds are formed by successive strata of these tombs. The lower strata are prehistoric, though some Roman and later graves occur near the surface.

DISCOVERY OF THE HOMERIC CITY OF ITHACA.—During his excavations at Leucas, in 1906, Professor Dörpfeld discovered a long settlement with simple walls, pottery with engraved ornamentation, and a few fragments of glazed ware. He considers this the Homeric city of Ithaca. Near by an archaic temple with old Doric columns outside and Ionic columns within, has been found. The clearing of a cave has led to the discovery of prehistoric remains, including stone implements, monochrome potsherds, such as are found in Troja II and Cnossos I, and also dull painted ware, recalling the early Italian and Thessalian pottery.

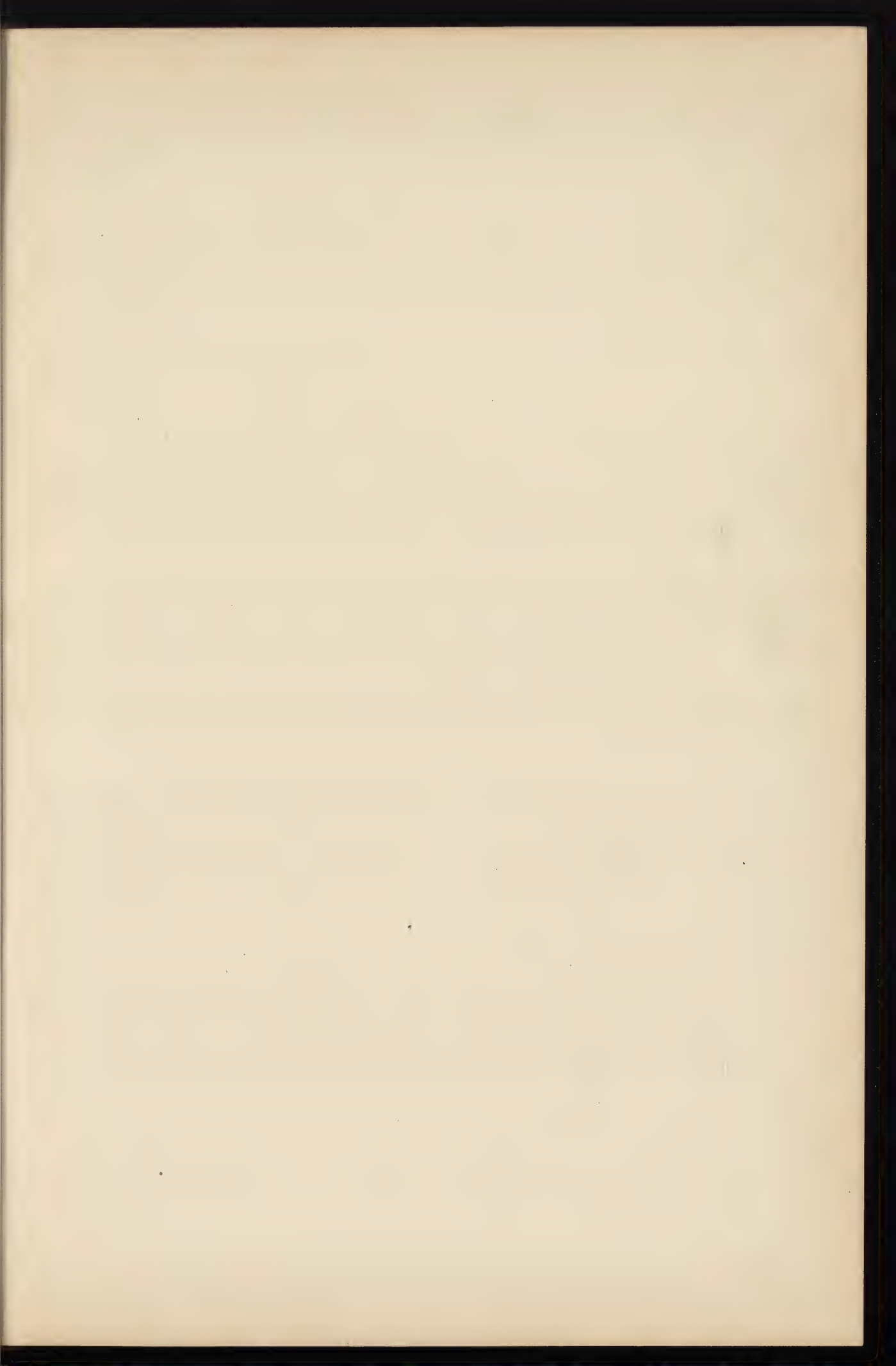
RESOLUTION TO PRESERVE THE OLD PALACE AT SANTA FE.—The Council of New Mexico has passed a resolution asking President Roosevelt to declare the Old Palace at Santa Fe a national monument, to be preserved at the expense of the nation as an archaeological museum and school. The Old Palace was built in 1598, and from that time until almost the present day has been the governor's palace, were he Spaniard, Pueblo Indian, Mexican, or American. It is a long, low adobe building, facing the Plaza. In recent years part of it has been turned into a museum of American antiquities. Under the plan proposed, the custodianship would be given to the American Institute of Archaeology, which proposes to establish there a school of American Archaeology and an archaeological library, as well as to extend the museum already there. Certainly no more fitting place could be found for such a project—a building inseparably linked with the history of that part of our country, situated in a region rich in relics of an earlier civilization.

PERFORATED KNOBS ON ROMAN LAMPS.—In an article on *Roman Lamps*, by Prof. E. W. Clark, which appeared in REC-

ORDS OF THE PAST, last year [Vol. V.], he states, on page 176, that with reference to the knobs always found on type III, he can not agree with Dressel that they were for the attachment of chains for hanging, as he had never been able to find one with perforated knobs. In a recent communication from Professor Clark he writes that last summer he continued his search along this line, and, in Florence, found a fragment of a lamp of this type, in which the knobs are perforated. He also found another specimen similarly perforated in the British Museum. In view of these discoveries, he states: "I therefore wish to modify my statement to the extent that it is evident that some of the knobs were perforated, and that such lamps could be suspended, but that in the majority of cases the knobs are unperforated, and that the further statement made in the paper remains probable."

GOLD CROWN FOUND AT ARLON, BELGIUM.—In December, 1905, while digging at but little depth, a gardener at Arlon, Belgium, came upon an isolated object which proved to be a torque, or crown, formed of a simple band of pale yellow gold, terminated at each end by a thin plate. The whole was hammered out from a single piece of metal. The relic is about 15 in. in circumference and weighs 19 grams. A similar torque, in bronze, belonging probably to the end of the bronze age, if not to the beginning of the iron age, was exhumed near Yamton, Oxfordshire, England, some years ago. Still another ornament of similar character was found at Fauvillers, Belgium, in 1878.

ROMAN POTTERY KILN IN BELGIUM.—A continuance of excavations begun at Houdeng-Gœgnies, Belgium, two years ago, has revealed the foundations of 10 buildings, evidently the outbuildings of some more important structure. The most interesting of these is the workshop of a potter. The kiln itself was found in the middle of a court, surrounded by sheds used, undoubtedly, for drying the pottery. It is well preserved, rectangular in shape and formed of tiles of burned clay, buried in a mass of clay, hardened by fire. It is composed of a furnace (*proefurnium*), air holes prolonged by tubular passages intended to carry the heat to the desired spot, and the laboratory (*sole*), or oven, in which the pottery was baked. The furnace, an arched passage about 9.8 ft. long, measures 4 1-3 ft. high and 3.6 ft. wide at the entrance. The oven is separated from the furnace by a thick mass of burned clay, perforated by the hot-air passages mentioned before. The periphery of each of these is vitrified, but that vitrification is merely the result of the fusion of the silicate of aluminum facilitated by the presence of a flux, such as the lime contained in the clay would furnish. Kilns of Roman potters have been found in Germany, England, France, and Italy, but this appears to be a unique find in Belgium. Here, as in other cases, the roof of the oven, as well as the chimney, has been entirely destroyed.





GRAVEL DEPOSIT AT TRENTON, N. J., WHERE MR. VOLK FOUND A HUMAN FEMUR IN DECEMBER, 1899. THE ARROWS POINT TO THE SPOT WHERE THE FEMUR WAS DISCOVERED

RECORDS ^{OF} THE PAST

VOL. VI



PART VI

JUNE, 1907



PRE-INDIAN INHABITANTS OF NORTH AMERICA

PART II

MAN AND THE ELEPHANT AND MASTODON

THERE is much evidence that man was cotemporary with the elephant and mastodon in North America. These pachyderms, having continued into post-Glacial time, it is not a matter of surprise that human implements, chiefly spear and arrowpoints, are found in the drift deposits sometimes in close proximity to the remains of the elephant.²¹

Remains of the mammoth have been found in several places in Minnesota. The Dakota Indians, according to Rev. S. W. Pond, related traditions of one or both. The following is quoted from a manuscript, still unpublished, written by that missionary, and recently presented by his son, S. W. Pond, to the Minnesota Historical Society.

Their chief object of worship was Unkteri, the mastodon, though they held many erroneous opinions concerning that extinct species, and did not know that the race was extinct. They had seen bones of the mastodon, pieces of which they had in their possession,²² and they were too well acquainted with comparative anatomy not to know that it was a quadruped. He described the species as resembling the buffalo or ox, but of enormous size. As they worshiped many other animals it was natural that the mastodon, which so much exceeded all others in size, should be adopted as their chief god, as indeed, he was; and to his worship their most solemn religious festivals were dedicated. They supposed that the race

²¹See RECORDS OF THE PAST, October, 1903; *Recent Mammoth Discoveries* [Illustrated.]

²²In 1834. Parkman names this deity Oanktayhec. *LaSalle and the Great West*, p. 249.

was still in existence, and, as they were never seen on land, and their bones were found in low wet places, they concluded that their dwelling was in the water. Their bones were highly prized for their magical powers, and perhaps were as valuable to them as relics as those of the saint are to a devout Catholic. A Dakota told me that he had discovered some of the fossil bones in the lake opposite Shakopee but was unable to raise them without some boat larger than a canoe.

Dr. E. D. Neill²³ confirms this statement concerning the mastodon, saying: "The bones of the mastodon, the Dakotahs think, are those of Oanktayhee, and they preserve them with the greatest care in the medicine bag."

It was in 1838 and 1840 that Dr. Albert C. Koch discovered in Missouri the remains of man closely associated with the skeleton of an animal to which he gave the name *Missourium theristocaulodon*,²⁴ which he regarded as more analogous to the hippopotamus than to the elephant or mastodon. The bones had the appearance of having been burned and were mingled with stone spear and arrow points, and tomahawks. Dr. Koch gives traditions of the Osage and of the Shawnee Indians respecting the animal. The reported circumstances indicate that the mastodon was killed by the aborigines, but to what age the strata in which the fossils were entombed belonged it is impossible to determine from Dr. Koch's description, but it is plain that it was a sedimentary formation. If the region could again be examined in the light of recent advance in Glacial geology, it is not impossible that it would be found to belong to the loess of the Iowan Glacial stage.

Prof. G. C. Swallow, of Missouri, informed Dr. J. W. Dawson that he had opened two burial mounds in that state, "on which vegetable soil 2 ft. thick had accumulated, and around which 6 ft. of alluvial silt had been deposited. In this alluvium was found the tooth of a mastodon."²⁵

In Pottawattamie County, Iowa, Prof. J. A. Udden has mentioned the discovery of the bones of the elephant, of *Bison latifrons* and of *Ovibos cavifrons*, and of a grooved stone ax in the loess, the last under 30 ft. of loess and at 40 ft. from the entrance of the cellar excavation. This country is in the southwestern part of Iowa, bordering on the Missouri River. The ax had "an adhering incrustation of calcareous material on one side, evidently deposited by ground water." (*Iowa Geol. Survey Report*, Vol. XI, p. 261.)

In *The Epoch of the Mammoth*, by James C. Southall, is given a summary of the evidence of the cotemporaneity of man and the mammoth. He says there are some cuts in Waldeck's work on Mexico and Yucatan, which unquestionably represent the head of the elephant, and which were taken from the ruins at Palenque.

²³*History of Minnesota*, 4th edition, p. 55.

²⁴See *American Journal of Science*, Vol. 40 (1841), p. 58, for an account of this animal and of this skeleton. It is there pronounced a mastodon by Dr. Horner. In this determination Dr. Koch concurred in recounting his discovery in 1857 (*Trans. St. Louis Acad. Sci.*, Vol. 1, p. 61).

²⁵See Dawson's *The New World and the Old*, p. 185.



SIBERIAN MAMMOTH IN THE SITUATION IN WHICH IT WAS FOUND IN 1900. [See RECORDS OF THE PAST, Vol. II, pp. 312-317.]

Bradford, in *American Antiquities*, p. 226, relates the discovery according to Clavigero, of an entire mammoth skeleton in a tomb made apparently for its reception.

There is nothing improbable in the supposition that the mastodon was known to the mound builders. It is of some significance that a tradition of this animal (or the mammoth) existed among the Indians. Mr. Jefferson, in his *Notes on Virginia*, mentions it as existing among the Delawares, and a French officer by the name of Fabri mentions it in 1748 in a letter to M. Buffon, as prevailing among the Canada tribes. (Southall.)

According to W. W. Mather (*Nat. Hist., N. Y.*, Part IV, p. 44), this tradition existed among the Indians of the northwest. Mr. B. F. Stickney, Fort Wayne, Ind., who was for many years the Indian agent of the United States for the tribes northwest of the Ohio, informed him that "particular persons in every nation were selected as the repositories of their history and traditions; that these persons had others who were younger selected for this purpose continually and repeatedly instructed in those things which were handed down from generation to generation; and that there was a tradition among the Indians of the existence of the mastodon; that they were often seen; that they fed on the boughs of a species of lime tree, and that they did not lie down, but leaned against a tree to sleep."

Finally, it may be mentioned, that in Crawford County, Wis., Colonel Norris, an assistant of the Bureau of Ethnology, has reported the discovery of "pieces of a mammoth tusk," in 1882, at the bottom of a burial mound, which, having a diameter of 70 ft., rose 10 ft. above the surrounding general surface.²⁶

Several of the effigy mounds of Wisconsin have apparently the form of the elephant, while from some of the mounds of Iowa have

²⁶Report of the Bureau of Ethnology, 1883-84, p. 19

been reported several stone pipes having the form of the elephant. The authenticity of the latter has been called in question by Mr. H. W. Henshaw, of the Bureau of Ethnology, but vigorously reaffirmed by the officers of the Davenport Academy of Science,²⁷ and with such evidence and argument that there seems to be no good reason for further doubting them. The so-called "Monitor" base of these pipes is good evidence of their genuineness as "Mound-builder" pipes. It is improbable that a fraudulent manufacturer of sandstone pipes should uniformly choose the elephant for his pattern, and further, should uniformly put them on the base so characteristic of the Mound-builder.

An account of the traditions and tales based on the discovery of elephant remains in Europe and America is given by Prof. W. B. Scott, in *Scribner's Monthly Magazine*, April, 1887 (vol. 1). He concludes that : "Altogether the evidence is strongly in favor of the view that the ancestors of the existing Indian races were familiar with these monsters," and that, "not many centuries ago the elephant was an important element in American life."

How lately the elephant (and mastodon) became extinct in North America is an interesting question on which but little direct light can be found.²⁸ That these animals lived into quite late post-Glacial time is indicated, not only by the condition of the bones themselves, but also by the recentness of the soil and peat which cover them in some cases. That they had a long residence here, even prior to the later phases of the Pleistocene, is indicated by the deposits of clay and loess with which they are covered in other cases. If they were extant in America when the Mound-builders flourished—say, in the Ohio Valley—it is quite certain that there would be some trace of them either in the form of bones or of imitative shapes made by the rude sculptors of those times. The absence of their bones in the mounds and the comparative scarceness of all other evidence, taken in connection with the traditional worship of Unkteri, given by missionary Pond, as already stated, indicates that these mammals were exterminated before the Ohio mounds were built. In Wisconsin and Iowa, further toward the northwest, have been discovered "elephant pipes," and "elephant mounds," as well as pieces of elephant tusks within the mounds, which indicate an earlier knowledge of the elephant, and it may be that the elephant, driven from the Mississippi Valley toward the northwest, finally expired in Alaska and Siberia, leaving only traditions of his prevalence in North America in temperate latitudes. From all the evidence that can be gathered it seems to be safe to assume that not more than 1,000 years have elapsed since the extinction of the elephant, and the writer is disposed to assume that not more than 500 years have passed since the Mound-builders left the Ohio Valley.

²⁷*Proc. Davenport Academy of Science*, Vol. IV, 1885.

²⁸See RECORDS OF THE PAST, Feb., 1904, *When did the American Mammoth and Mastodon become extinct?* by John Uri Lloyd.

Mr. J. V. Brower has published in his work, *Minnesota*, plate IX, a representation of a bronze medal found near Hastings, Minn., by Mr. Howard W. Crosby, and remarks that "other exactly similar casts have been found associated with Indian artifacts." This medal on one side shows in relief the profile of a woman's head, and "waterfall" head dress, and on the other the figure of an elephant. It bears the date 1446, and in the margin on one side the letters D. I S O T T A E A R I M I N E N S I. It has a hole near the top indicating that it had been suspended by a cord, probably about an Indian's neck, and carried as an ornament. It antedates the discovery of America by Columbus. It has been ascertained that an Italian noble family had the elephant as its armorial symbol, and it is evident, from the fact that several others of the same kind have been found in the northwest, that these medals were produced in considerable numbers and sent to America for trade with the aborigines. Hence they can have no such bearing on the aboriginal association of the Mound-builder with the elephant as has been supposed.

THE WISCONSIN GLACIAL EPOCH

The earliest discovery of human remains in the deposits of the Wisconsin epoch was made by Dr. C. C. Abbott. Since his announcement (1876), which led to much discussion and further search in the gravels in which he stated he found the rude "paleoliths," several confirmations of his discoveries have resulted in establishing the fact that in the undisturbed terrace gravels of the Delaware River in New Jersey, are numerous rude implements or "rejects" of human workmanship, as well as human skeletons.

The following illustrations of the "implements" found in the Trenton gravels are taken from the reports of Dr. Abbott to the Peabody Museum:

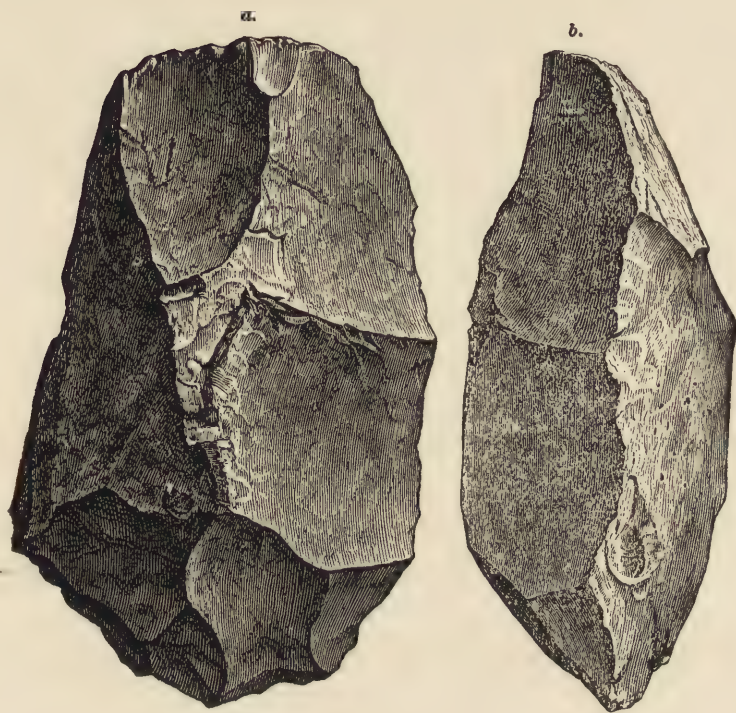
It is an interesting coincidence that the rude argillitic "paleoliths" of the Trenton gravels are of the same grade of stonecutting as the gravel-found quartz chips of Little Falls, Minn., and that neither of these localities, at the date of formation of the gravel was occupied by as high a type of stone-worker as had existed previously in the Peorian inter-Glacial, or in the Iowan Glacial epoch. Gravel man perhaps frequented the ice-margin and abandoned the country to the possession of more warlike and more skilful intruders from the south as fast as the country became habitable for the southern tribes. The newcomers would naturally resort to the same localities for material for their weapons and other implements.

The discussion of the evidence of man in the Trenton gravels has been prolonged and earnest, coördinate with its importance. For some years after the announcement it was widely discredited, owing to persistent suggestions that the articles found were of modern origin and may have been, and probably were, accidentally introduced from

above. This was supported by the discovery of Indian camp sites and workshops some distance above, in the Delaware Valley, where the natural rock (argillyte) outcrops, and whence similar implements were derived.

Mr. Ernest Volk, under the direction of Prof. F. W. Putnam, of the Peabody Museum, Cambridge, Mass., has prosecuted a thorough and long-continued investigation of the locality. He has established, apparently on the basis of actual excavation and observation, not only the occurrence of "paleolithic" argillyte implements attributable to the modern Indian, but two other periods of stone-working man. The next older than the Indian is exemplified by a series of jasper and quartz objects that have been found by him in the yellow sand and gravel that immediately underlies the soil. The age and origin of the sand are still a subject of investigation, some having regarded it of Glacial age and origin, some alluvial and of later date, and some as dune-sand, of indefinite age, but post-Glacial and possibly quite modern. It is obviously a dependent of the river valley and due to river action, and analogous to a similar stratum of alluvial sand which accompanies many, if not all, rivers within the influence of the glacial waters during their flood stage, but prior to the complete dissolution of the northern glaciers. It is not yet plain how these jasper objects were incorporated within this sand. Below this sand is a considerable thickness of tumultuously confused coarser sand and gravel, in which are many boulders of several inches, even more than a foot, in diameter. This has plainly been acted on by water, and in places seems to show some stratification. In this stratum have been found most of the Glacial artifacts which have been announced by Dr. C. C. Abbott, about which the heat of the controversy has revolved. Although Dr. Abbott, the first discoverer and chief supporter of the idea of Glacial man, was confirmed by several others who independently gathered the same kind of argillyte tools from this deposit, yet the doubts that were raised by others, some of whom made what they considered thorough search and excavation in this gravel stratum, were so confidently and adroitly presented, that it remained still to reach the conclusive demonstration. This was achieved by Mr. Volk December 1, 1899, when he discovered, and photographed before removal, a fragment of human femur in the cross-bedded green sand that lies below this stratum of unassorted gravel. This bone was thought, on careful examination, to show the traces of human workmanship. It was presented, with the accompanying facts, by Prof. F. W. Putnam at the New York meeting of the society of *Americanists*, October 20, 1902, where the subject was thoroughly discussed, and the opinion was expressed, even by those who had hitherto questioned the evidence, that, with this discovery, the case of Glacial man was so strong that there was no use to oppose it any longer.

Recently Dr. C. C. Abbott has reviewed the question in a publication entitled, *Archaeologia Nova Caesarea*, and has there classified the



CELT

Explanation.—The above represent a specimen “found in the undisturbed gravel of the bluff facing the Delaware at the depth of 6 ft. from the surface.” (Abbott.)



SPEAR-SHAPED IMPLEMENT

Explanation.—“The specimen, fig. 4, was taken from the bluff facing the river, but two miles further south than the exposure near Trenton from which most of the specimens have been gathered. It was discovered in a *perpendicular exposure* of the bluff immediately after the detachment of a large mass of material, in a surface that had but the day before been exposed, and had not begun to crumble. The specimen was 21 ft. from the surface of the ground, and within a foot of the Triassic clays that here are exposed. Directly over it, and in contact, was a boulder of large size, probably weighing 100 pounds; while at a distance of 5 ft. above was a second, much larger, boulder. The character of the mass, which was that of the bluff as exposed on the bank of the river near Trenton, was such as to render it impossible that this specimen of a clearly artificially shaped pebble could have reached this position subsequently to the deposition of the containing bed.” (Abbott.)

remains found at and near Trenton. He gives evidence that there have been three epochs of human occupancy which can be deduced from the facts, viz:

The Indian, agricultural, quartz and jasper worker, user of argillyte.

The pre-Indian, a nomad, user of argillyte.

The Glacial man, fabricator of argillyte implements; perhaps the Eskimo, nomad.

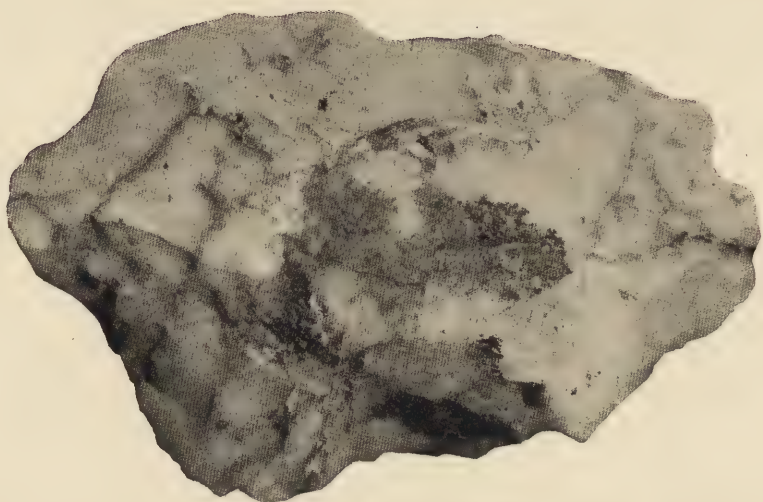
Section of the Delaware gravels near Crow Creek, Trenton, N. J.:

1. Black soil	7 in.
2. Yellow loam	10 in.
3. Coarse, pebbly gravel, with small boulders, mainly un- assorted	44 in.
4. Cross-bedded green sand, at the bottom of which the bone was found and photographed in place.....	21 in.
5. Impervious clay	3 in.
6. Clayey sand, cross-bedded.....	15 in.
7. Sand, clay, and boulders, passing below the talus.....	7 in.

Attention may be called here to the great similarity of the gravel section at Trenton to that at Little Falls, Minn. In both cases there is a surface sandy loam, below the soil, and below the sandy loam is a considerable thickness of unassorted coarse gravel, that at Trenton (No. 3) carrying numerous stones several inches in diameter. It is in this confused layer, at Little Falls, that the white quartz chips have been found, and from which, at Trenton, the numerous argillyte artifacts have been taken by Dr. Abbott.

The frontispiece to this article is from a photograph made December 30, 1899, and kindly furnished by Dr. Geo. F. Wright for this use. This view, compared with the descriptive section above, will make it clear that the human femur was well within the mass of the gravel of the terrace, and below the main mass of unassorted gravel and stones.

But little later the writer announced the discovery of artificial quartz chippings at Little Falls, in Morrison County, Minn. At first these chippings were pronounced to be not only earlier than the so-called mound-builders, but earlier than the Glacial epoch. Considerable discussion has also followed this discovery. The latest result, however, based on a new examination by the writer, published in Mr. Brower's *Kakabikansing*, assigns these chippings to a period when the dissolution of the great glaciers of the Wisconsin epoch maintained at Little Falls a vastly swollen river, which covered the entire terrace flat from the drift bluffs on the east side to similar bluffs (though less marked) on the west side, a distance of about two miles. This great river may have continued 1,000 or 2,000 years, and annually its sur-



QUARTZ FRAGMENTS AND CHIPPINGS FROM THE GRAVEL BEDS AT
LITTLE FALLS
From Brower's *Kakabikansing*

face must have been covered with floating ice and floodwood. These substances were clogged and jammed by the existence of a rocky island in the river, composed of slate with quartz veins. The aborigines seem to have resorted to this island and to have worked the quartz, distributing their chips and refuse over the surface adjacent, in time of low water, the same to become buried under the gravel by the disturbing and jamming action of ice and floodwood in time of high water. The fact that quartz chippings and even perfect arrowpoints of white quartz are found to be the product of manufacture by the modern Indian, at the same locality, and also more widely in the state, has introduced an element in this investigation which has caused some confusion, and all the quartz chips have been referred, by some, to the Indian of the region. The quartz chips are found in the disturbed upper portion of the Glacial gravels of the terrace flat, but rarely at a depth exceeding 4 ft. They have not been found in the undisturbed gravel, though they may exist there in small numbers.

The age of the Little Falls quartz-worker is, therefore, supposed to be during the first one or two thousand years after the retirement of the ice-margin from that locality, or about six or seven thousand years ago, while the continental ice-sheet still rested on the northern half of the state. It has been suggested in consonance with the trend of the latest anthropological research that these quartz-chippers were the ancestors of the present Eskimo. When it is remembered that nowhere throughout a wide extent of country toward the south, abandoned by the continental ice-margin, could any stone except drift pebbles be found suitable for the manufacture of hunting and spearing weapons, it is plain that the first exposure of this quartz would be seized upon with eagerness by the natives for the purpose of supplying themselves with that much needed material. They would visit the spot annually whenever the river was sufficiently low. If the Eskimo were the Minnesota quartz-workers they must have followed subsequently the retreating ice-margin, as it passed over Canada, reaching at last their present icy confines in the Arctic region, and leaving their Minnesota haunts to immigrants that pressed in from the more genial southern latitudes.²⁹

²⁹The writer desires to make some corrections of improper references to his early work at Little Falls:

1. Prof. G. F. Wright has refigured the chert implements found and published in the report in which they were first announced in his work *Ice Age in North America*, p. 537, and in the discussion of *Man and the Glacial Period*. But these chert implements were not found in the gravel, but on the surface, and may be of later origin.

2. Prof. Haynes has stated (*Science*, vol. 21, p. 318, 1893), that the writer found a copper implement in the boulder-clay, and quartz chips in the boulder-clay—which must be attributed to careless reading, as he never reported any such discovery.

3. Prof. W. J. McGee has also mis-quoted the writer in an article in *Popular Science Monthly*, saying that he has reported "polished stone and copper implements as well as human bones from the same aqueo-glacial terrace of the Mississippi near Minneapolis." The context allows here the inference that these things were found, like the quartz chips, within the gravel of the terrace, but they were found on the surface by other parties and may be ascribed to more modern origin.

Gilbert's account of an ancient hearth at the bottom of a well 30 ft. deep, on the south side of Lake Ontario, indicates human residence at about the same date as the Eskimo quartz-workers of Minnesota. It was in a series of elevated beach deposits left by the flood-stage of Lake Ontario, caused by the obstruction of its northern discharge by the receding Wisconsin glacier,⁸⁰ roughly estimated at about 7,000 years ago.



THE MASTERMAN AXE

From *American Geologist*

Claypole has described with particularity the occurrence of a polished, banded slate or greenstone axe in the drift deposits of northern Ohio, buried apparently under the lacustrine clay of the Wisconsin epoch.⁸¹ This axe was much weathered, the surface alteration penetrating in all directions toward the center, so as to leave but a core retaining the original color, and it was suggested by Professor Claypole that the implement had suffered exposure in sulphuretted waters, but as described it is reasonable to suppose that it was oxidized before its burial. If this supposition be sustained it would prove the existence of man in the next preceding inter-Glacial epoch (Peorian) capable of making a perfect polished axe in no wise inferior to those of the present Indian tribes. The credibility of this discovery, however, is impaired by the asserted discovery by the same man, in the same vicinity, of quite a number of other implements in the same laminated clay, while, so far as known, no other has been reported. Such a dis-

⁸⁰*Science*, vol. 8, p. 528, 1886. According to Mr. Gilbert this hearth was discovered by Mr. George H. Harris, who first published a description of it in *Semi-Centennial History of Rochester*, *Science*, vol. 8, p. 564. See also *American Geologist*, April, 1889, p. 173.

⁸¹*American Geologist*, vol. 18, p. 302, Nov., 1896; *Human relics in the drift of Ohio*.

covery should either be exactly verified by a geologist, who appreciates the significance, or be confirmed by a number of other reports of the same kind. Still the remarkable alteration, which the exterior of the axe has undergone, certainly indicates an age greater than the historic Indian, and marks this stone as a unique specimen. Its approval and publication by Professor Claypole, who was careful in forming his opinions, is an evidence of its authenticity as a Glacial implement.

In 1886, Mr. H. T. Cresson found a rude "paleolithic implement" of gray flint in the vicinity of Medora, Ind., about 100 miles west of Cincinnati. This was just outside the glaciated area of the state, in the midst of a rough country of knobs of Subcarboniferous strata, the valleys being partly filled with Glacial gravel and silt. The specimen was found beneath about 11 ft. of gravel, loam, and soil, firmly fixed beneath a boulder in such a position that it appeared to have been deposited there at the time the drift was formed. It was in "undisturbed gravel," on or near the top of older gravel or till, but in an aqueous deposit,³² which was apparently the product of the combined



GRAY FLINT IMPLEMENT

Explanation.—Implement of gray flint in gravel 11 ft. from the surface. Bluff, East Fork of White River, Jackson County, Ind. Found by H. T. Cresson.

ice and water action in a confined, small valley or gorge, near the ice-margin of the Wisconsin epoch. This specimen is $6\frac{1}{2}$ in. in length, of a triangular shape, and $3\frac{3}{4}$ in. in greatest width, represented by the following plate, actual size:

Subsequently, Mr. Cresson also found similar specimens in a till deposit at Claymont, Del. He had at an earlier date (1866) found the same kind of rude implements in a "cave shelter," near the headwaters of Naaman's Creek; in the same county in Delaware, in a deposit be-

³²There is some discrepancy between the diagram published in the *Proceedings of the Boston Society of Natural History*, vol. 24, p. 151, and that in Wright's *Ice Age in North America*, p. 536, each purporting to exhibit the geologic relations of this specimen. In the former the large boulder is represented to be in stratified gravel which lies upon an older gravel, and the aspect of the boulder in such a position is exceedingly anomalous. In the latter the boulder is wholly below the gravel, and lies in or on a deposit which is said to be "probably till," and it has the appearance of belonging to the till. Mr. Cresson's drawing was made from memory after leaving the spot, and the author admits its inaccuracy, a circumstance which indicates a lack of appreciation of the importance of the find and of the need of exact definition.

lieved to be cotemporary with the drift formations which underlie the city of Philadelphia,³³ i. e., the Columbia formation, and hence much older than the Wisconsin epoch, and more likely to belong with the Iowan, yet the fossils reported indicate an age more recent and perhaps post-Wisconsin. No extinct species were found in this cave.

"Paleolithic" implements have been found in gravels the parallel of those at Madisonville, and at Medora, Ind., in eastern Ohio (Tuscarawas County), at Newcomerstown, and described by Mr. W. C. Mills and Prof. G. F. Wright.³⁴ It is in the terrace gravels which line the valley of the Tuscarawas River. The specimen is of black flint from the Lower Mercer limestone of the region, 15 ft. below the surface of the undisturbed terrace.

Prof. G. F. Wright has described the occurrence of a plainly marked, but rude flint implement in Glacial gravels and sand, under about 8 ft. of undisturbed cross-bedded stratification, in Jefferson County, Ohio, "The condition of the stratification in all of the superincumbent 8 ft., which was closely examined by me, was such as to convince me that the implement was not intrusive, but had been deposited with the remainder of the material from the terrace."³⁵

What may be the relation to the Glacial epochs of those human relics that have been reported by Whitney and Becker found beneath lava sheets in California, or that of the Nampa figure found in Idaho, described by Wright, it is not necessary here to inquire. It can be said, however, that they tend to confirm the foregoing as to the great antiquity of man in America, and to make him cotemporary not only with the Glacial epoch, but with the elephant and other great mammals now extinct.

While probably most American geologists and archæologists fully accept the foregoing as demonstrating the Glacial age of man in America, a few still remain skeptical, and with superfluous caution, or with carping criticism, call attention to defects in the evidence, and are inclined to explain all these instances by some accidental circumstances that may have caused the intrusion of the specimens into the drift since the deposition of the same. Others attribute the reports to faulty observation and mistaken interpretation.³⁶

The term *paleolith* has come into discussion in this connection. Those who do not admit the Glacial age of man in America have tried to show that these so-called paleoliths do not represent "paleolithic man" as he has been identified in Europe, but are simply unfinished tools of neolithic man, indeed "rejects" of the present American races, or instruments that have been partly chipped out and kept for further manufacture into perfect tools at subsequent and more convenient dates. In this state they are not believed to be finished implements,

³³*Proc. Bos. Soc. Nat. Hist.*, vol. 24, 1880.

³⁴Tract No. 75, Western Reserve Historical Society, Cleveland, Ohio, Dec. 12, 1890.

³⁵*Popular Science Monthly*, Dec., 1895.

³⁶This is perfectly exemplified by a review of the evidence in a late publication by the Bureau of Ethnology (*Bulletin* 30, under *Antiquity*.)

and have been *cached* by the toolmaker as reserve stock, to be used when he needed them. It may require yet more time and further discovery to bring archæologists to agreement on this point. There have been found *caches* of flints of nearly identical form presenting the "paleolithic" coarse finish, numbering over 100 in one place. In such a case it is difficult to understand why they should have been dressed to the same form, on the supposition that they are simply stored for further treatment. It is also known that amongst the "neolithic" Indians of the plains, specially in Kansas and Nebraska, many specimens were no more nearly "finished" than these cached groups. It may be necessary to allow "paleoliths" of both dates—i. e., of Glacial man, unassociated with polished stone, and of the modern Indian, who certainly was also acquainted with a higher type of manufacture. But whether one or the other, they show the handiwork of man and it matters not. If they were cotemporary with the drift deposits in which they are reported to have been found they date from the Glacial epoch.

Late researches into the linguistic characteristics of the American tribes have shown conclusively that the tribes are widely separated, and must have had long independent histories. This result has been reached by Powell and his assistants in the Bureau of Ethnology at Washington. The native languages are 58 within the United States. If they were of one origin they have required a long lapse of time to acquire this differentiation, and long residence in their habitats as known at the discovery of America. Compared with central and eastern North America, the Pacific states are divided into smaller areas, characterized by separate languages. As in Europe, even within France or in England, the old inhabitants slowly acquired dialectic differences, after long contiguous, sedentary residence, so pronounced that they could not easily understand each other, so it seems in America the early inhabitants diverged in their speech more and more until they became as different as the various languages of the Aryan race of to-day.

Another of the results of the recent research of the Bureau of Ethnology has been to establish the American race, or "Amerind," as indigenous in America, without probability, and almost without the possibility of derivation from Europe or Asia. It shows some mongoloid characteristics, but they are so slight, and geographically so restricted that if the American race was derived from Asia, either that separation was so long ago that the original traits have been overcome by characters later developed, both linguistic and physical, or the migrating units were so numerous and so contrasted in language that the derivative tribes outnumber the present Asiatic sources from which they may have sprung. According to Dr. O. T. Mason,⁸⁷ "Contiguous to the Eskimo in America are the Athapascan family on the west, and the Algonquian on the east. Contiguous to the Eskimo in Asia are the

⁸⁷*Smithsonian Report*, 1894, p. 536.

Chukchis, and these are joined to other unclassed peoples. Now the Chukchi language and the Athapascan language, and the other Asiatic and American languages, are noted for their lexical and grammatical differences, and not for relationships." But he also says that the latest linguistic researches do not justify the assertion that the American languages stood alone in morphology.

In short, the tendency of archæological and anthropological research during the last 30 years has so strongly pointed to the independence of the American type of mankind that it has been asserted by several leading authorities that there is as much evidence pointing to America as to Asia as the primal birthplace of man, at least, that the American race is apparently as remote in time as any of Europe or Asia (Kollman, Powell, Fowler).

All theories, therefore, which seek to make the American race an exotic immigrant from other continents are confronted with the contrary opinion of the highest archæological authority. This, of course, excludes the idea of Messrs. Squier and Davis that the so-called Mound-builders were something more than the ancestors of some of the present Indians, and that other fancy of Mr. George Catlin that the Mandans are the descendants of a lost party of Welshmen. The idea of Ignatius Donnelly,³⁸ that the Central American countries formerly had commercial connection with the Mediterranean shores, through a now submerged land in the Atlantic, applies to more recent, almost historic time. The story of Plato may be based on fact, but the influence which such a connection must have had on the aboriginal tribes of North America could have been but slight and evanescent.

Influence of Recurring Glaciation.—That the earliest Americans were influenced in their migrations by the recurring epochs of the Glacial period can hardly be questioned, and it is apparent that the tribes dwelling in the central and eastern portions were much less sedentary than the Pacific tribes. This difference may have been due largely to the greater influence of the recurring continental ice-sheets in the valleys of the St. Lawrence, the Ohio, and the Mississippi, including also that of the lower Missouri. It is reasonable to infer, therefore, that the succession of inhabitants and of their arts of manufacture, at any locality, would indicate less a normal rise in skill and grade of industry than sequence of tribes subject to forced migration primarily under variation of climate. We have seen that, so far as the evidence available can afford us a guide, a neolithic stone culture preceded, at numerous places in the Mississippi Valley, a "paleolithic" stone culture. We have to infer that the neolithic tribes of the Peorian and Iowan epochs were expelled for a time from their ancestral seats, and that an Arctic (perhaps Eskimo) race of paleolithic skill succeeded them during the Wisconsin epoch, to be again succeeded by neolithic man of the present. It is yet to be seen whether all the "pale-

³⁸*Atlantis: The Antediluvian World.* New York, Harper & Brothers.

olithic" stone implements that have been found on or near the surface of the ground in North America, or what part of them, can be distributed chronologically and geographically so as to fall into this scheme of Glacial geology, for as they have been found and recorded in archæological literature they are much mixed up with neolithic, and in numerous instances they have been assigned to the present neolithic Indian tribes.

The far-reaching influence of the recurring Glacial epochs of the continent necessarily affected tribes whose habitats were further south than the glacial limit. These more southern tribes felt the same impulse toward migration still further south. They came into conflict with their neighbors. They drove them out or were themselves exterminated or absorbed. In some places the population increased and perhaps became congested. The reactions which tended to repel these immigrants from the north became less and less energetic as the pressure dwindled in more southern latitudes, and a permanently sedentary stage of habitation could have remained only with those peoples who were beyond the reach of these disastrous climatic severities, or were screened, like those of Yucatan and Guatemala, as suggested by Morgan, from the routes of direct migration. The changes were so slow that generations came and went without serious collisions, i. e., without such conflicts as resulted in the sudden displacement of whole tribes. The change was so gradual that the victims could not realize it, much less detect its cause. The Mexican and Central American civilizations, while affected probably by an influx of barbarian intruders, must have survived through the Glacial epoch or epochs, and may date back to a remote Pleistocene antiquity, coeval with Egyptian or Chinese.

On the retirement of the glacial conditions, which was probably also very gradual, there was an opportunity, and hence an impulse, toward a northward migration. Those lands formerly uninhabitable, either from superabundance of water or because of too great cold and too much ice, became inviting fields for the spread of the crowded inhabitants. The entire fauna, including man, and the flora, which had been driven southward, now began to retrace its steps and to reoccupy the renovated lands. The Eskimo followed the ice-margin, but the other tribes lingered along the more genial streams and chased the elk, and, perhaps, the buffalo, over the prairies, or hunted the fox and the bear in the mountains. This return must have been accompanied by many sub-incidents of war, separation, and migration. Some moved further east and some further west, as convenience or safety dictated. Some tribes expanded widely, and some were reduced to the smallest numbers, or were exterminated. Some carried with them traces of the civilizations with which they had come into contact, and perhaps, as in the case of the tribes that settled in the Ohio and Mississippi valleys, and became known distinctly as "Mound-builders," established in more

northern latitudes a culture that showed some of the characteristics of the southern civilization. But in the main they came back as they went—barbarians, tinged with lingering traits of savagry.

There were, therefore, extensive movements both north and south, and minor ones east and west. Many attempts have been made to adjust into some systematic scheme the numerous signs of alliance among the tribes and of migrations from one part of the country to the other, which are proved by linguistic similarities. Other attempts have been made to assign a place of origin, not to say in Asia or Europe, but a primal seat in North America, from which all the tribes may have spread. The most notable one, perhaps, is that of Morgan, which makes the initial point in the valley of the Columbia River. Others assume the Atlantic seaboard, in the latitude of Maine, or in the latitude of Florida. Some say the tropics of South America, some Alaska, some Mexico. There is, no doubt, evidence in favor of all these claims, since there is no doubt that the ice-epochs compelled extensive migrations, and permitted extensive refluxes. It seems probable, accepting the late results of the Bureau of Ethnology as expressed by Powell, that these conflicting and often contradictory theories can be ascribed to the diverse movements incident to the recurring ice-epochs, studied from different points of view and in different parts of the country. The latest general movement northward, under ameliorating climate, as already stated, may have begun from 7,000 to 8,000 years ago, that being the approximate date of the close of the Wisconsin ice-epoch, but more probably several thousand years later. When this migration was completed and the stocks became in a manner fixed again as to location, it is probable that they severally occupied nearly the geographic areas represented by the linguistic map of Powell.³⁹ The fact that the various languages have not blended by intermixture into one, or into a few, but have maintained their identity, proves long sedentary isolation. It is apparent also from this map that the tribes did not in all cases move as an entirety, but that occasionally parties of more or less number and importance lingered and maintained themselves while the mass of the tribe continued their northward movement. Wherever they may have finally stopped it was certainly where their habits and tastes found their most congenial environment, subject, of course, to the dominance of superior tribes. The superior stocks had their first choice of the country. The Dakotan, lover of the prairie and of the buffalo, and worshipper of the mastodon, last of all seized upon the great plains of the Mississippi and of the Missouri, yielding the country east of the Mississippi mainly to the Algonquian. In general the mountainous and timbered regions were, from choice or necessity, avoided by the Dakotan when in the plenitude of his power and dominion. No doubt even at this early day the enmity and warfare which existed between these stocks when the white man

³⁹Seventh annual report of the Bureau of Ethnology, 1885-86.

came into the country, had already sprung up. That this hostility was an inheritance from the remote past is asserted by both peoples. There were numerous fluctuations in the boundary line separating their domains.

The importance of the Glacial epoch, therefore, in any attempt to investigate the early history of man in America, can hardly be over-estimated. It caused the migration or the destruction of the inhabitants of the northern part of North America and projected an ice-sheet over the northern part of the United States. It finally released its grip on the country less than 10,000 years ago, and the north temperate latitudes became habitable again, probably about 7,000 or 8,000 years ago. This great event serves as a datum for measuring human as well as geological history.

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St. Paul, Minn.



WORK OF THE OHIO ARCHÆOLOGICAL SOCIETY

THE Ohio State Archæological and Historical Society held its twenty-second annual meeting at Columbus, Ohio, on March 22. Gen. Roeliff Brinkerhoff was reëlected President; Mr. George F. Bareis and Prof. G. F. Wright, Vice-presidents; Mr. E. O. Randall, Secretary and Editor; Mr. Edwin F. Wood, Treasurer; Prof. W. C. Mills, Curator and Librarian. In addition to membership fees the society receives an annual appropriation of about \$8,000 from the state legislature. A fair proportion of this sum is spent in care of the monuments, left in charge of the society, and in the exploration of mounds under the charge of Professor Mills. The work accomplished by the society is already very important, and the prospects before it are very promising.

Before the organization of the society, interest in the archæological and historical remains of the state was principally shown by those who lived outside its borders. The celebrated collection of relics made by Squier and Davis, in connection with the earliest exploration of the mounds, was so little valued that it was allowed to go out not only from the state, but from the country, having been purchased by Mr. Blackmore, of Salisbury, England, where it is safely housed in a section of the Blackmore Museum, compelling the citizens of Ohio, who would study their relics, to make a pilgrimage to that distant center of archæological interest.

Soon after the founding of the Peabody Museum of American Archæology and Ethnology, at Cambridge, Mass., Prof. F. W. Putnam directed his attention to the prehistoric remains of Ohio, and col-

lected a vast amount of material from the mounds and burial grounds explored by him and his agents. All this material was transferred to the Museum in Cambridge, where it is accessible to the general public. The Peabody Museum, also, at an expense of several thousand dollars, purchased the farm in Adams County, Ohio, upon which was situated the celebrated Serpent Mound. This was thoroughly explored by Professor Putnam, and restored to its original condition, and has now been generously given to the Ohio Society, and is under their care, being kept in order and open to the public without expense.

At the time of the Columbian Exposition in Chicago, in 1893, Mr. Warren K. Moorehead was employed to excavate some of the most important mounds on Paint Creek, Ohio, near Chillicothe, and an immense amount of most interesting material, consisting of implements and ornaments of copper from the Lake Superior district, obsidian from the Rocky Mountains, shells from the Gulf of Mexico, mica from North Carolina, and wagonloads of flint implements, was taken to Chicago, and has been there preserved in the Field Museum.

Meanwhile, the Smithsonian Institution has been continually increasing its stores of Ohio relics preserved in the National Museum at Washington.

When the State Historical Society of Wisconsin was established, its enterprising curator at once sent agents to Ohio to secure, by gift and purchase, all the attainable manuscripts bearing upon the history of the Northwest Territory, which included Ohio; so that the historian of Ohio must go to Madison, Wis., to find the data necessary for his work.

Such was the situation which the Ohio Society has been compelled to meet. Slowly the interest in its work has been increasing, and the results already are such that a great enlargement of its work is opening before it in the immediate future. Through its continuous and systematic reexploration of the mounds, it is found that their treasures have been by no means exhausted, so that there are already collected in the museum duplicates of nearly everything to be found in the collections taken out of the state. In reexploring the Harness mound, and other mounds near Chillicothe this last year, a great amount of new light has been shed upon the manner of burial among the early Mound-builders, while the implements and ornaments discovered bear renewed witness to the extensive commerce that prevailed among them, bringing together material from almost every part of North America.

Among the most startling discoveries by Mr. Mills during the past summer is that of the capacity of the early Mound-builders for counterfeiting gems. Among the objects most valued by the early Mound-builders were pearls. One necklace of pearls, which had been exposed to the disintegrating elements so long that it was now worthless, is pronounced by an expert to have been worth \$10,000. This appreciation of pearls led the artisans of that early day to manufacture beads out of clay, and cover them with malleable mica, brought from North Carolina. So skillfully was this done that for a time Professor Mills supposed them to be genuine pearls.

Already the museum of the society has outgrown its temporary quarters, but a bill is before the legislature, which is likely to be passed at the next session, to erect a special building for the society at a cost of \$200,000.



ANCIENT POTTERY FURNACES

OUR earliest knowledge of most vanished races is gained from the pottery fragments. In most cases the manner of molding or turning, the means employed for decorating and method of burning has to be surmised from the characteristics of the pottery itself. In Greece, where ceramic art reached such a high degree of perfection, our only knowledge as to how it was fired is gained from a few painted vases which indicate the ovens used. Concerning the Roman method of burning pottery we have a number of examples of pottery-furnaces, one of the best known being that unearthed at Pompeii, while others have been found in Roman towns in Germany and England. Most of these "kilns" were constructed partly of burnt, partly of unburnt brick, the interior, floor, and outside of the roofs being covered with a strong layer of cement. They consisted of two main portions, the fire-chamber with its adjuncts, and the vaulted chamber above, in which the objects to be baked are placed. The fire-chamber was usually circular, with a projection in front, the *praefurnium*, which had either a vaulted roof, as at Castor and Heiligenberg, or a gabled roof formed of pairs of tiles, as at Rheinzabern. Through this the fuel was introduced, consisting chiefly, as charcoal remains show, of pine-wood. The fire-chamber was either divided up, as at Castor, by walls radiating from a central pillar which supported the roof, or by rows of pillars in a line with the entrance, as at Rheinzabern and Heiligenberg. Holes were bored in the roof to allow the heat to penetrate through, but the arrangement varies; at Heiligenberg each division of the furnace was vaulted, making grooves along which the holes were bored. The oven where the pots were placed has been destroyed in most cases, but we know that it consisted of a floor, a wall with entrances, and a vaulted dome."

It will be noted that the general principles of these Roman pottery-furnaces have been retained to the present time. But the Greeks and Romans were not the inventors of this general style of furnace or at least this form of furnace had been in existence for centuries prior to the earliest such remains yet discovered in Europe as is shown by the extremely well-preserved pottery-furnace which was discovered some years ago in the Tigris-Euphrates Valley at Nippur. The accompanying illustration gives a good idea of the structure of this pottery kiln. The date of this furnace is about 2700 B. C. "The top of it was about thirteen feet by seven. Its height was nearly four feet. It consisted of a series of elliptical arches, beneath one



BABYLONIAN FURNACE OF THE TIME OF ABRAHAM

From Clay's *Light on the Old Testament*

end of which the fire was kindled. The flames and smoke ascended between these arches, which were separated by spaces. Tiles were placed upon the top of the vertical flues thus formed. They served the purpose of covering the chambers, thus forcing the smoke and flames to the rear of the furnace, where the flue was located. At the same time, these tiles formed the top of the stove. At the back of the oven, a flue was constructed the entire length of the stove, whence the smoke escaped. Stoves similar in type are used at the present time in the cities of that district. One writer is of the opinion that a room was built around the oven in which the pottery was arranged; while another thinks that the pottery was placed beneath the arches, as is done in modern kilns, not unlike this archaic furnace of Abraham's time."



PREHISTORIC LEAD FURNACES

THE "prehistoric" or "Indian lead furnaces," which renewed activity in the lead fields of eastern Iowa, northern Illinois, and southern Wisconsin is now bringing to notice, are not new to archaeologists. The first prospectors in that section discovered numerous abandoned lead mines and furnaces of rude con-

struction and limited capacity. The furnaces or smelters consisted of funnel or bowl-shaped excavations on the hillsides, near the outcroppings, which were lined with slabs of limestone. Across the bottoms of these hopper-like excavations were placed long, narrow stones, so arranged as to form grates.

A channel, spout, or trough of clay led from the opening under each grate, on the down-hill side, to a small catch-basin a little farther below. This catch-basin, also lined with clay, was intended to receive the product of the furnace.

The ores were thrown into the hopper and dry fuel thrust into the trough upward and backward, so as to come under the grate.

A fire applied to the fuel soon brought molten metal down through the grate to the trough, which carried it to the catch-basin below, where it cooled.

Col. George W. Featherstonhaugh, geologist and surveyor, sent out by the War Department, in 1832-3, noticed many of these abandoned lead furnaces still undisturbed by modern mining operations, but he could not determine whether or not they were erected or used by the Indians.

However, Wm. R. Smith, one of the early presidents of the Wisconsin State Historical Society, described them as "Indian lead furnaces," and stated* that "at many of these primitive smelting places the white settlers extracted a profitable harvest of rich lead from the slag and refuse of the Indians' smelting."

John Shaw made a trip from St. Louis to the mouth of Fever river in 1815 for lead. In June, 1816, he made another (in a boat on the Mississippi) this time ascending the Fever river to where Galena now stands. He could talk French or the Indians would not have permitted him to go, being at that time pro-British and hostile to Americans. He found 25 lead furnaces such as I described. Fuel and ores were mixed, and molten lead was run into bowl-shaped holes in the earth. The pigs were called mats, and weighed 70 pounds each. He took enough for 70 tons. This lead was melted by the Indians, but under the direction and pay of French Indian traders, who received the money for it.

As Indians forget nothing, and as the numerous Sac and Winnebago tribes which occupied the country about the lead "diggings" for years after the whites began mining and smelting there knew nothing about these so-called "Indian furnaces," there would seem to be small ground for believing that they were built or used by the aborigines with whom the Anglo-Saxon is acquainted.

The mound-builders, the makers of copper implements, and the pre-Columbian miners of lead and copper in Wisconsin and Michigan have yet to be satisfactorily identified.

Washington, D. C.

FRANK ABIAL FLOWER.

**Documentary History of Wisconsin*, p. 354.

PALESTINE EXPLORATION FUND

THE resumption of work at Gezer by Mr. Macalister has received the cordial approval of our friends. They desire to see the utmost thoroughness used, for obviously the deepest remains are the most valuable. As Dörpfeld has gone beneath the excavations of Schliemann, and some of the best Babylonian finds lay below the supposed first stratum, so our work hereafter must in all cases be carried to the bottom. Of course, in Palestine, one may reach the rock and the original cave dwelling, but even so there is not a little danger of overlooking something important.

The natural impatience which was felt in England and this country over the delay in obtaining the last permit was prolonged by the singular course which the Turkish officials took in sending word to Gezer rather than to the British embassy, and the work had been started before London knew of it, and then the information must come over here.

The decease at Salem, Mass., of Miss Eliza Ropes gives our work the second legacy which it has received in America. The first was in 1901, from the Rev. Walter G. Webster, of Providence, R. I., who was a subscriber and an earnest student of Biblical archæology. That legacy amounted to \$1,000. This second one is not from a subscriber and amounts to \$2,000. These two legacies in 40 years emphasize the fact that no large gift has ever been received. The largest annual subscriptions do not exceed \$100. Considering the enormous wealth of many Christians and Hebrews it is remarkable that, while large sums are bestowed on other objects of a sacred character, this fundamental work of the elucidation and confirmation of the Bible has been so generally ignored. It is, so to speak, from the mouth of babes and sucklings that God has thus perfected praise.

The researches carried on for many years by Prof. James A. Montgomery, of the Philadelphia Divinity School, have resulted in a fine volume of which all Americans will be proud. He has made an exhaustive study of his subject, covering the origin, the history, the theology, and the literature of the Samaritans, and gives us a richly illustrated and very well arranged book.

THEODORE F. WRIGHT.

42 Quincy Street, Cambridge, Mass.



STONE CIRCLE AT ABERFELDY IN PERTHSHIRE, ENGLAND.—A megalithic monument, near Aberfeldy, consisting of 3 circles of standing stone, is noted in a recent issue of the *Reliquary*. The inner circle is 25 ft. 6 in. in diameter, the middle one 41 ft. 3 in., and the other, 58 ft. The largest stone is 6½ ft. high.

BOOK REVIEWS

BENARES, THE SACRED CITY *

BENARES, the Sacred City of the Hindus, whose natural location made it, before the dawn of history, the center of primitive worship for the inhabitants of the Ganges Valley, is rich in ancient history and is still full of interest to all students of the religions of the East. In a recent book by Mr. E. B. Havell the history of this city is briefly sketched from 1400 B.C., when the Kasis, one of the Aryan tribes of northern India, established themselves at this point in the Ganges Valley, to the present time and the modern worshipers, who crowd the sacred city.

A large part of the book is devoted to a history of Hinduism, from the Vedas to the rise of Buddhism. The descriptions of the present day scenes, however, and the magnificent illustrations are the most attractive part of the volume. Far too little space is devoted to the results of the recent excavations which throw so much light on the actual history of the city and the forms of religion practised there.

The recent excavations on the site of Deer-park have revealed a great number of "votive stupas, or memorial mounds, large and small, some containing relics, others merely marking a place associated with events in the life of the Buddha, or with his numerous fabled pre-existences."

Many of the recent excavations have confirmed the early account of this city by Hiuen Tshang, a Chinese pilgrim, who came to India to study the teachings of Buddha about the latter part of the VII or early part of the VIII century A.D. We quote the following description of the city, as condensed in Mr. Havell's book:

At the north of Benares, and to the west of the Ganges, there was, he [Hiuen Tshang] says, a stupa, or memorial tower, about 100 ft. high, built by the Emperor Asoka. Near it was a stone column, highly polished and of blue color (probably lapis lazuli), in which the reflection of Buddha might always be seen. At a distance of nearly two miles farther on, northeast from the river, he arrived at the Deer-park, where there was a monastery, built in 8 sections, within a walled enclosure. There were pavilions of one and two stories for the accommodation of the monks, 1,500 in number, who were studying the doctrine of the "Little Vehicle." In the midst of the enclosure was a temple-monastery, the lower part of stone, surmounted by a tower of brick faced with stone, or perhaps by the curvilinear *sikra*, or spire, similar to that of modern Jain and Hindu temples in northern India, which was crowned by the melon-shaped *amâlîka* wrought in embossed gold. The *amâlîka* formed the base of the finial.

**Benares, the Sacred City*. Sketches of Hindu Life and Religion, by E. B. Havell, A. R. C. A., Principal of the Government School of Art, Calcutta. With many illustrations. London: Blackie & Son, Limited, 50 Old Bailey, E. C. Glasgow, Dublin, and Bombay. 1905.

Round about the tower, or spire, in tiers rising one over the other, were a hundred niches, each containing an image of Buddha, which Hiuen Tshang supposed to be of gold, but which were probably only of bronze or copper gilt, like those now found in Buddhist shrines and monasteries in Nepal, Sikkim, and Tibet. The temple contained a life-size statue of Buddha, made of brass, in the attitude of preaching. * * *

To the southwest of this temple was a stone stupa, built by Asoka, which had become partly buried, though it was still 100 ft. in height. It was built to mark the very spot where Buddha, "having attained to perfect knowledge," began to expound to his fellow-seekers after truth the wisdom he had gained under the Bodhi tree at Gaya.

In front of it Asoka had placed a memorial column, about 70 ft. high, polished like a mirror, "so that all those who pray fervently before it see from time to time, according to their petitions, figures with good or bad signs." Another stupa close by marked the place where the 5 disciples sat in meditation in the Isapattana Deer-park, when they reached it after their desertion of Buddha in the Vindhyan mountains. Hiuen Tshang adds that there was a multitude of sacred monuments within the enclosure of the Deer-park monastery, and describes many tanks and stupas round about it.

The recent excavations have laid bare the remains of the Asoka column, mentioned by Hiuen Tshang. Unfortunately, the greater part of the inscription on this column is missing. However, "the splendid lion capital, in the style of ancient Persepolis, is almost intact, and just as Hiuen Tshang described it, 'smooth as jade and shining like a mirror.'" "The fragments of the wheel, representing the Dharma, have been discovered, and the design of the capital makes it probable that all 3 symbols, which correspond to the mystic syllable *aum*, of the Hindu trinity, were placed above it."

The excavators have discovered everywhere signs of the great catastrophe which destroyed the monasteries and temples of Sarnath. "Charred bones and wood, lumps of melted brass, half-fused bricks, and calcined stone testify to the fury of the invaders." Numerous important buildings and votive stupas, and beautiful sculptures representing events in the life of Buddha, have been uncovered. There are also numerous "miniature stone shrines of non-Buddhist origin," showing that before Deer-park was specially appropriated by the followers of Buddha, it was a common retreat for all religious devotees.

Hiuen Tshang graphically describes what he saw in one of these forest retreats. There were Buddhists from various provinces lying in the thickets, dwelling in caves, or huts made of leaves and branches, or under the shade of the trees. Jainas in white robes, the wandering Bhiksus, followers of Krishna, Brahmin students, ascetics undergoing various forms of self-torture, philosophers, and adepts in sacrifices, and many others—all disputing, discussing, and explaining, with the tolerance of each other's views, which, at least in early times, was characteristic of Indian religious sects.

As was stated before, the special charm of this book lies in the descriptions of the scenes of to-day—not its architectural features, but the people thronging the streets. The city, in his words, "is as a microcosm of Indian life, customs, and popular beliefs," furnishing a never-ending fascination. "Here the student may read a living com-

mentary, more convincing than any record ever written, painted, or sculptured, of the life of ancient Egypt, Babylon, Nineveh, and Greece. Here the artist may see before him in the flesh the models of classic sculptors and painters, which might have served for the Panathenaic frieze, the statuettes of Tanagra, and the frescoes of Pompeii. There is an indescribable charm of color in the throng of women on the ghâts and in the streets—the rainbow-tinted cotton saris of the United Provinces, with their varied shades of lemon, rose, and the palest blue, contrasting with the simple white of Bengal and the deeper notes of indigo, crimson, orange, and chestnut from the rich silks of the Deccan and southern India. The painter need not search for subjects; he will rather be bewildered by the kaleidoscope of changing scenes, groups, and incidents, with marvelous backgrounds and surroundings, which pass before him in endless succession."

This book is a valuable contribution to the more popular literature of India, which, although it may not satisfy the special student, will be welcomed by that large class of readers who desire a good general knowledge of the religious history of this part of the East.

FREDERICK B. WRIGHT.



SPANISH EXPLORERS IN THE SOUTHERN UNITED STATES *

THE second volume of *Original Narratives of Early American History*, which is being published under the auspices of the American Historical Association, has just appeared.

This volume contains the narratives of the *Spanish Explorers in the Southern United States*. The first is the *Narrative of Alvar Nunez Cabeca de Vaca*, which, although full of interest, is disappointing in that the directions and distances given are so vague.

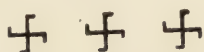
The second narrative is that of the *Expedition of Hernando de Soto by the Gentleman of Elvas*. This account was written after the author had returned from his travels and does not seem to be based upon field notes, but to be entirely drawn from his memory. For this reason some of his descriptions, especially as regards localities and distances, are exceedingly vague. However, the main route followed and the geographical features described are much more definite than in the narrative of Cabeca de Vaca. The general widespread interest which is everywhere felt in Hernando de Soto makes this narrative especially attractive to all classes of readers.

*ORIGINAL NARRATIVES OF EARLY AMERICAN HISTORY. *Spanish Explorers in the Southern United States 1582-1543*. The Narrative of Alvar Nunez Cabeca de Vaca, edited by Frederick W. Hodge, of the Bureau of American Ethnology. The Narrative of the Expedition of Hernando de Soto by the Gentleman of Elvas, edited by Theodore H. Lewis, honorary member of the Mississippi Historical Society. The Narrative of the Expedition of Coronado, by Pedro de Castaneda, edited by Frederick W. Hodge. With maps and a facsimile reproduction. Charles Scribner's Sons, New York, 1907.

The third and last narrative is of the *Expedition of Coronado*, as written by Pedro de Castaneda, of Najera, some 20 years after the expedition. It is unfortunate that we have no earlier or more accurate account of Coronado's expedition, for his discoveries opened up an entirely new field and increased the geographical knowledge of our Southwest immensely.

Dr. J. Franklin Jameson, the editor, and the American Historical Association, are to be commended for their efforts in bringing within the reach of everybody translations of these original manuscripts bearing on the history of North America.

F. B. W.



EDITORIAL NOTES

NEW DIRECTOR FOR THE AMERICAN SCHOOL OF CLASSICAL STUDIES IN ROME.—Prof. Jesse Benedict Carter has been appointed as director of the American School at Rome in the place of Prof. Richard Norton, who has resigned.

BRONZE STATUETTE FROM NORWAY.—A small bronze figure of a woman, together with 3 fibulæ of a primitive type, has been found near Bergen, in Norway. It appears to be the work of an Italian craftsman, under Ionian influence, and probably its presence here is to be accounted for by the very early amber trade which flourished between Jutland and Italy.

A PHœNICIAN TOMB.—A remarkable megalithic tomb, found south of the waters of Merom, is described by G. Dalman. It is situated on a steep hill, near the village known as Khirbet Shana. The top of the tomb, built of 4 huge blocks of stone, is covered by a single stone 7.87 ft. broad, 9.7 ft. long, and about 2.9 ft. thick. In front is a portico made of 4 smaller blocks. No similar remains are found elsewhere in Palestine. The so-called tomb of Hiram in Phœnicia, however, bears some resemblance to it.

THE INDIAN WAR CUSTOM OF SCALPING.—According to a German, Doctor Friederici, scalping as practised among the American Indians, is, with a few exceptions, distinctly American. His investigations lead him to conclude that the custom was not general at the beginning of the historic period, but was confined to a narrow strip from the St. Lawrence to the Gulf of Mexico, approximately the territory held by Iroquoian and Muskogean tribes and their near neighbors. The ordinary trophy of war was the head until the encouragement given by the colonial governments by offering prices for scalps caused the spread of the custom.

COPY OF THE DISCOBOLUS FOUND AT CASTELPORZIANO.—“In the royal reserve at Castelporziano, where the King and Queen of Italy spend holidays, Queen Elena, who is an enthusiastic archæologist, recently discovered a fine discobolus. Her Majesty actually tore her hands in her eagerness to unearth the relic. The torso, which is a copy of the famous Discobolus of Myron, in the Vatican Museum, has been restored by Prof. Rizzo, the famous archæologist, and has been presented by the King of Italy to the National Museum.”—[*London News*.]

SCARAB ADDED TO THE BOSTON MUSEUM OF FINE ARTS.—The Boston Museum of Fine Arts has recently received, through the bequest of Mrs. Martin Brimmer, an unusually large scarab of the reign of Seti I. It is of a greenish-blue faience, measuring nearly $4\frac{1}{2}$ in. by 3 in. A curious “harness,” for suspension, is attached to it. This is made of pale gold and consists of 3 bands, one passing around the base, one transversely across the back, and the third lengthwise along the line of the wing covers. The beetle is raised on its legs above the base, as if walking. A few traces of the goldleaf, which once covered the face, are still visible. There is no inscription, but instead are 18 cartouches bearing the name and prename of Seti.

ANURADHAPURA, THE BURIED CITY OF CEYLON.—The British government has been excavating Anuradhapura, the ancient capital of Ceylon. This city, built when Buddhism was first introduced into Ceylon, covered about 100 square miles, and was in two parts, the inner city, which harbored 96,000 Buddhist priests, and the outer, where the king and common people lived. Repeated invasions of the Hindu Tamils and the rapid growth of tropical vegetation had covered the city to the depth of 6 or 8 ft. The surrounding plain, formerly fertile and well irrigated by water brought from the mountains and stored in artificial lakes, had been reduced to uselessness by the destruction of the canals and tanks. The British government, by repairing these waterways and thus storing up the rain of 4 months for use during the other 8 months, has made the land arable once more.

The most important remains in Anuradhapura are the Dagobas, of which there are 4. These are mounds of solid brick, shaped like beehives, from 300 to 400 ft. high. Originally they were painted white, but now they are covered with vegetation looking like wooded hills.

Other interesting objects are the “Yogi” stones, at which Buddhist priests gazed to get their minds in a proper condition to contemplate the Infinite. The “Jokunas,” or bathing places, are numerous and beautiful, though simple in design. The “Moonstones,” taking the place of thresholds, are perhaps the most unique relics of this ancient civilization. They are half circles, laid in concentric circles, with first a border of lotus leaves, then a procession of lions, horses, Brah-

many bulls, and elephants. Or it may be varied by a procession of geese. The center is taken up by half of the conventional lotus flower.

What is thought to be the oldest tree in the world is standing here. About 2,200 years ago a branch of the tree under which the Buddha Gautama sat when he attained Buddhahood, was said to have been brought to Anuradhapura and planted where it still grows, revered by pilgrims. [Abstract from *Scientific American*.]

EARLY NEW ENGLAND INDIANS.—We are inclined to ascribe to the Indians found by the earliest colonists on the New England coast the characteristics, habits, and belongings of the Indians of the western plains to-day. This is, in large part, a false conclusion, for ponies, rifles, and all kinds of iron implements were known to the Indians only after contact with white men. The early explorers left descriptions and pen-drawings of the Indians as they found them. Remains of their camps help us in forming an accurate idea of their mode of life. Great physical endurance and strength, hospitality, long memory of injury, keen sight, uncleanness, cruelty to prisoners, unflinching bearing of pain—these were some of their characteristics.

Frequently their camp was located on a prominent elevation and was fortified with huge pickets made of small logs set a few feet in the ground, and extending 10 or 12 ft. into the air. These were placed close together and sharpened at the upper end. The wigwams within were of 3 shapes—hemispherical, conical, and long. A hemispherical one was 10 to 15 ft. in diameter and 6 ft. or more in height at the center. It was made by putting small poles into the ground in a circle and lapping the ends together. They were covered with strips of birch bark or mats. These and the conical were intended for one family, while the long wigwams were inhabited by a number of families. These latter were similar in construction, except that the poles were set in rows from 20 to 50 ft. or more long. A fire hole, about two feet in diameter and a foot or more in depth, was dug in the center, or, in the long house, in the center of the section set apart for each family. A smoke hole was made in the roof over the fire hole. Cooking and eating utensils were made of clay, soapstone, wood or gourds. The squaws made baskets from splints of hickory, birch, and ash, from reeds, rushes, cornhusks, silkgrass, and wild hemp.

Hunting, fishing, and agriculture were the occupations, when not on the warpath. Their boats in New England were usually dugouts, made from logs felled by fire and then hollowed by fire and scraping. Corn, beans, peas, squashes, and pumpkins were raised. Boiling was the common method of cooking, the meat or fish being cooked in the same dish with the vegetables. For clothing they used furs in winter, and almost nothing in summer. Barter with distant tribes evidently took place, for pieces of copper and red pipe-stone have been found in New England, although they do not occur there in the geological formation. [Abstract from Prof. J. T. Bowne in *Springfield Republican*.]





SOUL-HOUSE OF TWO FLOORS WITH CHAIR COUCH AND
STAIRWAY UP THE SIDE. EGYPT [FIG 5]

RECORDS ^{OF} THE PAST

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SOUL-HOUSES IN EGYPT*

FOR many years past, pottery models of houses had occasionally found their way to museums, from the illicit digging of natives in Egypt. But nothing was known as to their original positions or dates, and they were so scarce that even the national museum in Cairo had not any example. During the past winter the work of the Egyptian Research Account, in Upper Egypt, has brought to light a large number of these models, and enabled the subject to be put on an exact historical basis of development.

The name of Asyut will be familiar to many, from the large American college there, which is so efficient an elevator to the native Christian population of Upper Egypt. In the desert cliffs of limestone at the side of the Nile Valley are some vast tombs cut in the rock, beside hundreds of smaller burial chambers. And a few miles south of this is a similar set of rock-tombs at the village of Rifeh. These are all of the period of the Middle Kingdom, IX to XII dynasties, about 3700-3300 B.C. In front of the cliffs at Rifeh was a large cemetery of graves cut in a gravel shoal, on the foot plain which is formed by about half a mile of desert between the cliffs and the Nile-mud cultivation. This shoal had gradually been accumulated by wash from

*The full detail of these soul-houses, with photographs of a hundred of them, and also of the other results of this year, is ready for subscribers to the Egyptian Research Account (\$5.00) for the single volume of 40 plates, and the double volume will be issued in two or three months' time.



POTTERY TRAYS OF OFFERINGS [FIG. 1]

the desert hills during rare storm-bursts, perhaps once in a generation, or in a century. And the shoal had continued thus to grow, so that about 25 in. of gravel had been laid down in 5,000 years since the graves were cut, or half an inch in a century. The whole cemetery was thus covered with a purely natural unbroken sheet of gravel. On trenching through this, hundreds of graves were found, and though all had been plundered for valuables anciently, some fine objects were recovered, and the pottery models had been left behind unheeded in the search for precious metals.

The conditions here described explain how it comes about that the models were common here while very rare elsewhere. They were



TRAY OF OFFERINGS WITH SHELTER [FIG. 2]



PORTICO WITH CANOPY OVER THE TANK [FIG. 3]

originally placed upon the surface of the grave, to give shelter to the soul when it came out in search of sustenance. In most cases the desert surface is wasting by denudation, hence the models in such positions were always exposed until entirely destroyed. Here the surface was accumulating, and within a thousand years the models, which were in lower situations, might have 6 or 8 in. of gravel and blown-sand heaped around them, enough to save them from further destruction. A few are quite perfect, most are partly broken, but the scattered fragments serve to show many details of interest. The ancient plunderers had done us one good turn, as in some cases models had fallen into the opened grave, and were thus sanded over and preserved intact.

The origin of these models is in the tray of offerings. In very early time a mat was placed by the grave, and a pan of flour laid upon it for the sustenance of the dead. Such an offering was older than the dynasties, as the Heiroglyph *hotep* derived from it was used by Menes. The actual mat and pan have been found in later times, but the general system in the early dynasties was to carve a stone altar representing it, and place that by the grave. Then the poorer classes had the same imitated in pottery, as in the trays of offerings. (1) On these were hewn 2 tanks for water, with a drain from them, a bull's head, haunch, ribs, cakes, and a bird. These were felt to be but a cold



MODERN CEMETERY AT RIFEH SHOWING SERRATED
WALLS USED 5,000 YEARS AGO [FIG. 8]

and inhospitable accommodation for a soul that had come up from the shelter of the earth below, and so the next stage was to provide a shelter, apparently copied from the Bedouin tent. (2) Another stage was to provide a small hut like a sentry box, with sometimes a chair inside it. Then the portico was copied from the houses in actual use. (3) A raised cope was put around the roof of it, and a canopy or shelter from the sun was added above the water tank. In this latter shelter there are the holes for the posts, in which pieces of stick have been inserted for the present view.

The development of the upper story began with the roof coping and a stairway to give access to it. Then small shelters began to be added upon the roof. (4) In the example will be seen a verandah along the back of the roof, two large wind-openings one on each side, with domed tops and clear roof spaces over them—originally 4 columns in front of the house—2 open doors, and a door covered by a mat of maize stalks, which closed the storeroom. Soon the upper story developed as large as the lower, and then furniture began to be introduced. (5) In these the couch is placed on the ground in the front portico, to get the coolest air at night low down, while the chair is on the upper floor, to avoid the dust and heated air from the ground during the day. A later variety was attained by enclosing the whole front court with a high wall entered by a doorway; the offerings were reduced or abolished, and the furniture was put into the back chambers. (6) The couch is here seen with the curved headrest, and the raised foot shelter, which seem to have been always used. A stool is also in the back chamber, one end of which has been broken away. At the left hand in the front court is the stairway which led to the upper story, now lost, and beneath the stairs is the woman making bread,



SOUL-HOUSE WITH COUCH AND STOOL IN BACK CHAMBER
BREAD MAKER BENEATH THE STAIRWAY [FIG. 6]



SOUL-HOUSE WITH UPPER STORY BEGINNING ON THE ROOF
AND CLOSED DOOR TO STOREROOM BELOW [FIG. 4]



FRAGMENTS OF WINDOWS, DOORWAYS AND SERRATED
WALLS OF MODEL HOUSES [FIG. 7]

with a large water jar at her side. The offerings are placed against the wall between two doorways.

The minor details of the brick vaulting of roofs and floors, the floors carried on beams, the trap-door openings for stairs, the cornbins on the roof, are also shown with all the little variations of devices and plans which were actually used. The windows sometimes had a hood-moulding over them (7), and the front doors of the courtyard had a cornice top. The walls were, in the later models, finished off with a serrated top, and the same custom is found in the modern cemetery (8) close by the ancient graves. Examples of these models will be sent to the museums of Philadelphia, Boston, and New York.

The other results of this season of work were also of much archaeological interest. From the same cemetery were obtained a magnificent burial of the XII dynasty, in richly-painted coffins, with a painted canopic box containing the vases of viscera all inscribed, two beauti-

fully wrought boats, and five carved statuettes. And from smaller tombs, weapons, ivory carvings, scarabs, and hundreds of other objects were procured. At Gizeh, also, to the south of the work of Doctor Reisner, a series of graves of the I dynasty were opened; they all surrounded a great burial, and can thus be dated to the reign of King Zet. From the stone vases, flint knives, ivory carvings, pottery, etc., it is seen that there was no difference of fashion between the southern and northern capitals at Abydos and Gizeh, but that the civilization was already completely unified in details of style, and one place did not lag behind the other as much as a single reign.

The Egyptian Research Account is now about to undertake the largest excavation yet attempted, in clearing the sites of the great temples at Memphis, which cover more than a hundred acres. There probably remain here the foundations of many temples, one below the other, as were found at Abydos, and statuary is likely to be as abundant as it has proved to be at Karnak. The great capital of the land through all its history still awaits research, and though more than a million dollars would be needed to clear the whole remains of the city, yet it is hoped to raise sufficient subscriptions to carry out the most important part of the clearance of the temples.

W. M. FLINDERS PETRIE.

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WORK AT POMPEII.—During the last year a house, evidently that of a wealthy man, has been partly uncovered in the Via Nolana, one of the principal streets of Pompeii. The atrium, with its Corinthian columns, the tablinum, and part of the peristyle, showing a number of columns, have been excavated. In the impluvium of the atrium the statue of a satyr stands as a fountain figure. In attitude it, in some measure, calls to mind a celebrated Poseidon of the collection of the Laterans. Like most Pompeian decorative figures, this statue is not very carefully executed; nevertheless, in form, attitude, and expression, it shows great naturalness. The laughing face and eyes are wonderfully lifelike. To the wealth and artistic taste of the owner, two other decorative figures bear witness. A face tile of terra cotta shows the front of a crouching lion over the gutter of a waterspout, which was built downward like a shell, and ornamented with acanthus leaves. There is also an original bronze piece of good workmanship, a shield-shaped frame with the head and forefeet of a short-horned bull projecting; a relief, shaped like the beak of a ship, over the neck of the animal leads to the conclusion that this may have served as a plaque, or even as the figurehead of some vessel.

RELICS OF THE STONE AGE FROM TALTAL, CHILE*

TALTAL, Chile, is situated in a desert region, scarcely habitable at present, yet in the terraces due to upheaval, in some cases as much as 250 ft. above sea level, are shell heaps, graves, and other relics of the inhabitants of pre-Spanish times.

A surprisingly large number of the graves have been disturbed, leaving bleached and crumbling bones exposed for miles, so that an untouched grave is rarely met with at present. Probably these treasure-seekers found no metal objects and did not care for relics of no intrinsic value, such as the archæologist welcomes.

The shell heaps throughout the region indicate the main article of food, and are composed of such shells as are found on the present beach. Fish, mammal, and bird bones are also plentiful, the *guanaco* being the mammal most commonly represented. The implements used in obtaining food are abundant. The "hammer-stones," for breaking the mollusk shells, are most numerous, and are fashioned out of hard pebbles from the boulder beach, sometimes with indentations on each side to aid in grasping, or a groove for the attachment of a handle. Flat slabs, which served as anvils, are almost as plentiful.

Harpoons of *guanaco* bone, or of schist, probably used for spearing sea urchins and crabs in the manner still pursued by the present Chileans are found. In many places the ground is strewn with arrow and lance-heads, and flakes of the silica from which they were made. The best of this material may have come from a distance by exchange for "hammer-stones" from the beaches. One or two arrowheads of crystalline quartz are reported, as well as one which, under the microscope, shows a composition of solidified shells. Mr. Evans was unable to determine the locality from which the material for this latter was derived.

The arrowheads may be grouped as oval, lanceolate, triangular, triangular with basal notch, stemmed, or stemmed with barbs. The edges are curved or rectilinear, usually crenulate. The finer specimens are examples of remarkably delicate chipping. One dagger, 8 in. long, was found, while others are less than one-half in. in length, so small that some credence can be placed in the tradition that they were poisoned.

In the interior there are rock paintings, executed roughly in ochre. A fish often repeated, perhaps as an ideograph for water, is a common design. On one rock is a painting of men with feathered

*During the past two or three years, Oswald H. Evans has carried on archæological investigations in northern Chile, at Taltal. The results of his investigations have appeared from time to time in *Man*, from which the following article is abstracted.

head-dresses and lances, a woman clothed in a long garment, a child and some kind of an animal. Tradition says that these "Infidel pictures" mark the location of mineral veins, but as yet Mr. Evans suspends judgment as to the truth of this supposition.

A previously undisturbed grave fairly typical of the Taltal district was thoroughly excavated. It was one of a group of 50, arranged in an irregular oval. The graves are from 10 to 20 ft. apart, each marked by a depressed tumulus, often almost destroyed by atmospheric agencies. The mound studied was circular, 10 ft. in diameter, and about 4 ft. high. A few flakes of chalcedony, broken shells, a hammer-stone, an "anvil," crumbling human bones and sherds of pottery were scattered around. Examination proved that the tumulus was built of excavated material with local surface debris added. Near the middle a few pieces of coarse pottery, nearly an inch thick, were found. Later more were discovered, and pieced together into a crude oval vessel, 9 by 7 by 5 in. The base is rounded so that it could stand upright only when thrust into the sand. It seems probable that it was placed near the top of the mound to hold offerings of food.

Below the level of the surrounding surface the earth was soft and free from large pebbles. Small pebbles, sand, shells, and fish remains were plentiful. The interspinous bones of some large fish appeared in such numbers as to indicate that they had been gathered for some purpose. Two and a half feet below the surface some ill-preserved human vertebræ were met with. The small space occupied by the human bones showed that the body was buried in a contracted or crouching position. The skull was crushed, but enough of the lower jaw was preserved to show 3 healthy teeth, remarkable for their perfectly flat upper surfaces.

Mr. Evans was able to separate out the remains of 15 bone harpoons, all in fragments, in this grave. The marks of the tools with which they had been scraped to a point were clearly discernable. None were barbed. It is hard to see how some, fashioned from rib bones, could have been used as weapons. Only one arrowhead was present; it was lanceolate in shape and of poor material. By far the most interesting object was a necklace of shell beads. The scattered beads, when threaded, formed a string 6 ft. long. A few fragments, of irregular shape, stained bright turquoise blue by means of copper, came to light. As this color was confined to these few fragments and no copper-bearing stone was found in the rubbish, which could stain by contact, the coloring seems to have been done artificially.

The pottery fragments found in the Taltal region show no evidence of the use of a wheel in their manufacture. Four classes of pottery are noted by Mr. Evans. The first he describes as being "scooped out of a mass of clay * * * with rounded base and totally devoid of ornament." Two specimens were found and part of a third.

The second class is of better quality, but as far as known also without ornament. The texture is coarse, but the well-curved fragments indicate that the pots were well shaped and sometimes large. Usually the sherds are a quarter of an inch thick, rather poorly baked and show the marks of the tools on both surfaces. "Sometimes the interior is coated with a smooth slip of unbaked clay, probably in order to make the pots capable of holding water, and many of them have holes bored in their upper portions by which they might be suspended." This ware is dull brown. The handles, when present, readily break off. The material, and hence the manufacture, appeared to be local.

The third class is a still finer variety, thoroughly fired, with smooth, glossy surface, and painted ornamentation. Many are shallow bowls and dishes; the more globular have flared rims, small handles close to the rim, and slightly concave bottoms. The most common ornament is a free-hand spiral drawn in black pigment. The inside, as well as the outside, was usually ornamented. Two examples of attempts at depicting animals were found.

By far the best pottery has been found only in isolated fragments. It is thin and has a well-polished surface, deep red or pale buff in color. The ornamentation is in 3 colors. One has on it a painting of a human hand, probably part of an entire figure.

Mr. Evans is inclined to believe that the finer potteries were not imported because there is no example of moulded ornament, none of the black ware characteristic of the Peruvian coast peoples, no fragments referable to the common shapes of the Peruvian ware, and the ornamentation presents features differing from those of the civilizations of the North.



A NEGLECTED ARCHAEOLOGICAL FIELD

DURING the past few years interest in American archaeology has been increasing, especially in regions where the prehistoric ruins are striking and impressive. The less imposing ruins and mounds, however, often furnish more valuable data to the archaeological student. Many of our local state archaeological societies are awaking to the importance of studying the prehistoric history of their states, and such societies should receive all the encouragement possible from persons interested in prehistoric North America.

There is a vast region in our Northwest extending from the area of the Pueblo and Cliff-dwellings northward through the plateaus of Washington, Southern British Columbia, to the region around Hudson

Bay, which has received very little attention from archæologists. For this region Mr. Harlan I. Smith makes an appeal in the Boas Anniversary Volume, 1906, in an article under the title of *A Vast Neglected Field for Archaeological Research*. Although considerable anthropological work has been done in this area the archæology has scarcely been touched. In this region there is a paucity of archæological material which Mr. Smith attributes, in part, to the comparatively recent occupation of the area by Indians, or to the sparse population, if not to both of these causes. He states that, "It is quite possible that the Plains were not thickly populated before the introduction of the horse, the acquisition of which, no doubt, gave a great impetus to migration throughout the entire Plains area."

Although characteristic pottery of the Pueblo area and of the Mississippi Valley is found in these respective regions, yet "no ancient pottery is known from the California area or the Northwest coast. Both of these latter regions are so well known that the absence of pottery, or at least its great scarcity, is determined; but its presence in the wide northern area of the interior of British America is possible. It is true that pottery has been found in Alaska which closely resembles that from the adjacent portion of Siberia. The art of making it may have come from Siberia; so that it does not necessarily lead us to expect to find pottery in the upper Yukon, the Mackenzie Basin, or, in general, in the Canadian Northwest." He continues:

It is true that in this region we may hardly expect to find archæological material comparable to that found in the Southwest, Mexico, and Peru, especially the kind that would appeal to architects, artists, travelers, and students of modern history. But, however entertaining it might be to contribute to these interests, it must be borne in mind that archæological work is not done solely to meet the needs of those interested in these subjects; it is the professional duty of the archæologist to reconstruct prehistoric ethnology even in fields that are held to be barren or largely so, and negative results are helpful in arriving at a knowledge of the prehistoric ethnology of the whole of our continent.

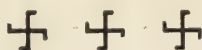
Judging from what we know, however, we may expect to solve a number of problems by working over this area. It would seem advisable to conduct this archæological work in co-operation with students who are investigating living tribes; for a study of the modern Indian of a certain spot throws light on the archæology of the region, and an understanding of the antiquities of a given place is helpful in the study of its natives. Furthermore, by this system, the continuity of historical problems is met by a continuity of method.

In selecting successive fields of operation, it would seem best to continue explorations in an adjacent area, sufficiently distant from those already examined to present new conditions and give promise that new facts may be discovered, possibly a new culture-area. At the same time a new field of operations should be so near that no unknown culture-area may intervene. Thus the limits of culture-areas may be determined and new areas be discovered.

To further this work to the best advantage Mr. Smith proposes that those who are familiar with the Pueblo and Cliff-dwelling region should examine the adjacent regions, especially in Kansas, where Pueblos are known to exist, and thus determine the limits of Pueblo culture. He would call on the anthropologists of California, who are

familiar with the prehistoric ethnology of Nevada, to study the region between California and the great Canyon of the Colorado, and those who have worked in the lower Columbia Valley, Washington, and southern British Columbia, to investigate the western limits of the culture found in the Mississippi Valley. He would call on the Historical Society of North Dakota to extend their studies of the Mandan migrations, a work on which they have already made a start. The Historical Society of Nebraska is already planning for more active work in that state, and Mr. Smith would suggest that, if possible, they extend their investigations outside of the state, to the west and northwest. In conclusion, he says:

From another standpoint, the ethnologists interested in the historic Indians might take up prehistoric ethnological work—students of the Siouan groups in the Siouan area, those of the Shoshonean group in the Shoshonean area, and students of the Athapascan group in the Athapascan area. By following this line of investigation, the work of just these men would clarify the problems of the whole situation.



ARCHAEOLOGICAL WORK OF THE UNIVERSITY OF CALIFORNIA

IN THE search for the earliest evidences of man on the Pacific Coast, the University of California has commenced an exploration of the newly discovered Hawver cave in Eldorado County, Cal. The locality is of particular interest as being in the famous auriferous gravel and Calaveras skull region. The cave appears to be more recent than the majority of the caves explored by the University in Shasta County, and is still in the process of growth. Bone remains are numerous, but split bones, so characteristic of the Shasta caves, are scarce. The peculiar extinct goats of the Shasta caves, *Euceratherium* and *Preptoceras*, have not yet been found to be represented by remains, but some excellent specimens of *Megalonix* and *Equus occidentalis* were obtained. Exploration will be resumed with the subsidence of the water accumulated in the cave during the winter rains.

A careful examination of several shell mounds on San Francisco Bay has recently revealed that their bases are in all cases a number of feet below the present level of the sea, indicating a subsidence of the land to this extent since the sites were first occupied. A considerable antiquity is thus established for the earlier deposits in these mounds, from which collections for the University museum have been obtained.

The University has also recently completed a linguistic survey of the Indians of the Miwok stock, which is one of the principal remaining groups of tribes in California among whom such investigations have heretofore not been systematically made. It was found that the great

number of dialects usually attributed to this people are properly reducible to only four. The territory inhabited by the Miwok was also found to be smaller than has been believed. A number of areas formerly supposed to have been occupied by the Miwok were in reality held by Indians of adjacent stocks. Considerable ethnological collections were formed in this region and in several others where investigations have recently been carried on.

The explorations are under the direction of F. W. Putnam, and have been carried on by A. L. Kroeber, P. E. Goddard, S. A. Barrett, and J. C. Merriam, with the assistance of E. L. Furlong and N. C. Nelson.

A. L. KROEBER.

University of California.



EARLY REFERENCES TO AMBER IN ASIA*

NUMEROUS references to amber appear in Chinese cyclopedias and geographical works, giving much reliable information as to its use and distribution as well as curious ideas of its origin. One such writer, Li Shih-chên, says, "When a tiger dies, its soul (spirit) penetrates into the earth and is a stone. This object resembles amber and is, therefore, called *hu p'o* (tiger's soul)." Still another, T'ao Hung-ching, describes its origin thus:

There is an old saying that the resin of fir-trees sinks into the earth and transforms itself [into amber] after a thousand years. When it is then burned it still has the odor of fir-trees. There is also amber in the midst of which there is a single bee, in shape and color like a living one. The statement of *Po wu chi* that the burning of bees' nests effects its make, is, I fear, not true. Only that kind which, when rubbed with the palm of the hand and thus made warm, attracts mustard-seeds, is genuine.

According to Li Hsün:

Amber is a secretion in the wood of the sea-fir. At first it is like the juice of the peach tree, later it coagulates and assumes form. Besides, there is southern amber (*nan p'o*), which, however, does not come to us on sea going junks.

Others attribute amber not only to the resin of the fir tree, but to that of various trees, one adding, "When bee-nests are burned, the shapes of bees are inside in addition."

Su Sing says:

What all people say about *fu ling* coincides, although there are slight discrepancies. All agree in stating that it arises from the transformation of fir-

*Part 3, vol. 1, of the Memoirs of the American Anthropological Association consists of an interesting paper by Berthold Laufer, entitled *Historical Jottings on Amber in Asia*. We give here an abstract of the paper.

resin into *fu ling*, so that the spirit of the *fu ling* is that of the great pine-tree. When the latter is broken or felled without the root being injured, and thus not decayed, its sap flows down and coagulates. It, therefore, cures the heart and kidneys by prevailing them with juice. Now, amber originates thus: When the branches and joints of the pine-tree are still flourishing, they are scorched, especially under the influence of the hot sun. Then the resin flows out of the trunk of the tree, and thickens in large masses on the outside, where the sun strikes it. Thereupon it sinks into the earth, and the juice, moist in the beginning, trickles into the earth for many years, where finally it is preserved only as a lustrous substance. Now, it is capable of attracting mustard; still, however, it keeps its adhesive properties. This is the reason that all sorts of insects stick to it, which happened before the time it penetrated into the ground. There are, accordingly, two substances which are produced out of the pine-tree, but which are each different in their nature. *Fu ling* arises in the female principle, and is completed in the male principle. Amber arises in the male principle and is completed in the female principle. Both, therefore, cure, regulate, and tranquilize the heart.

Some state that *fu ling* first results from the coagulation of the resin and then amber, each process requiring 1,000 years. Various kinds of amber were recognized by the Chinese. One called *hsi* amber appears to be what other ancients called agate, and what we call jet. It was by some considered a further transformation of amber, after 1,000 years, and was used as an amulet as well as for medicinal purposes, especially to prevent cataract in the eye. From the Chinese accounts it appears that this was found near Turfan, in Turkistan, and exported thence to China from about the V century to the XII, after which it dropped out.

From the testimony of occasional references to amber, it is evident that it was found in northern India at the beginning of the Christian era. Pliny alludes to Indian amber in 3 passages, one of which mentions the fact that amber in a rough state, with fine bark still adhering to it, was carried from India to Cappadocia in the time of the Emperor Tiberius. Amber was also imported into India, as appears from the writings of a Chinese, about 629 A. D., in which he mentions amber among the products of Syria met with in western India.

While amber is much used in Tibet, it does not appear to be native there. Chinese records also mention the production of amber in the Roman Empire and Persia.

Burma, however, seems to have been the chief point from which it was imported into China, by way of the province of Yünnan, though the Chinese evidently considered it the product of Yünnan itself. The *Kuang ya*, a dictionary published in 255 A. D., contains this passage:

"Amber is a pearl. Above and beside it no plants grow. The least depth [in which it occurs in the soil] amounts to 5 ft.; the greatest depth is from 8 to 9 ft. It is as big as a *hu* [a measure holding 10 pecks]. By cutting off the rind the amber is obtained. At first it is like the gum of the peach tree, but by being stiffened and hardened it assumes form. The people living in that district work it into head-pillows. It is produced in *Po nan hsien* [a part of Yünnan]."

There are few trustworthy accounts of finding amber in China proper. In fact, probably amber has been found in China only occasionally in quantities too small for commercial purposes; possibly only amber-like resins were ever found there.

There are records of tribute including amber sent to the Chinese court by Turkish tribes in the X century. Two Chinese geographies mention it as a product of Samarkand. As it is not known to exist *in situ*, in Turkistan, it very likely was brought there from the west, from Russia in all probability. Aside from the fact that amber is widely distributed in Russia, this conclusion is further borne out by the statement in a Persian work to the effect that Chinese merchandise exported into Persia included "yellow amber from the country of the Slavs. This is a resin thrown out by the sea of the Slavs."

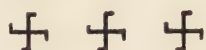
The Portuguese are known to have carried amber into China, probably from European sources. At present in Mandalay, Prussian amber is cheaper and easier to procure than the Burmese.

The Chinese manufacture various imitations of amber from copal, shellac, colophony, dyed sheep's horn, and, most important of all, glass. The upper part of the beak of a crane is also used as a substitute. A curious imitation of amber is described in a Chinese cyclopedia as follows:

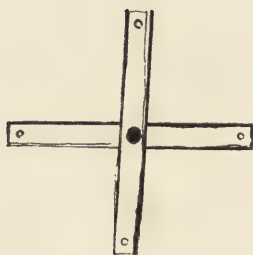
"Amber can be made from chicken-eggs by the following method: Take an egg, mix the yolk and the white of it, and boil it. As long as it is soft, an object can be cut out of it; this must be soaked in a bitter wine for several nights until it hardens; then rice-flour is added to it." This is given as a quotation from an earlier work where the word amber does not appear, so this may not have been intended for a substitute.

Many of the Chinese references to amber are in medical works, for it was considered efficacious in various complaints. Its use in making beads and other ornaments was general. It was also burned as incense.

Mr. Laufer expects to follow the present paper with another devoted to objects made from amber.



GREEK VASES AT PHILADELPHIA.—The collection of about 700 Greek and Italian vases belonging to the Pennsylvania Museum and School of Industrial Art has recently been carefully examined and rearranged. The collection is largely made up of Apulian vases, but there are examples of Cypriote, Corinthian, south Italian, and Bucchero ware as well, and also a number of Attic vases, including some black-figured amphoræ, and two white lecythi. The most valuable is an Attic red-figured *stamnos*, decorated on one side with Heracles and the Nemean lion, and on the other with Theseus and the Marathonian bull.



SIMPLEST FORM OF CROSS [FIG. 1]

THE EVOLUTION OF THE GREEK FRET

THE history of the "Greek Fret," as it is termed in the decorative work of architecture, carries with it the history of Aryan civilization.

The Greek fret is found in various forms and degrees of development wherever evidences of contact with the Aryan race appear. In fact, its history would prove such contact even though it were not established by comparative philology.

Investigation is fast destroying the so-called autochthonic races, and there is a prospect of their entire extinction, with an intimation that there were no original races outside of the stock which, according to the Mosaic account, began life in central Asia.

All so-called "autochthonic" traditions confirm in a greater or less degree the scriptural account of the origin of the human race.

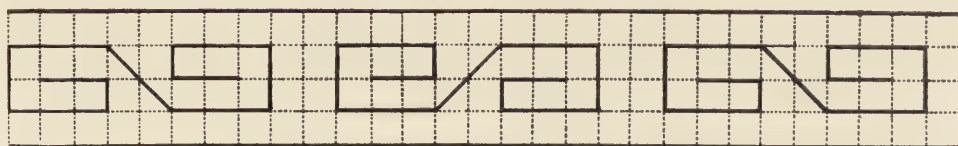
Whatever we may individually believe as to the number of "Adams," their development, or their descent, the fact seems established that there was one locality where civilization originated and from which it sent forth its waves.

This primeval society gave us the "Greek Fret."

From research in various directions and especially from study of the elementary principles which underlie composition in art, one can have no hesitation in affirming that the Greek fret was evolved from the Aryan symbol of vital flame, the "Suastika."



PERFECT FORM OF GREEK FRET [FIG. 8]



FRET FROM YUCATAN [FIG. 5]

In the space in front of the Aryan dwelling was the altar, upon which, by means of two crossed pieces of wood, perforated at their junction, a straight stick and a leather thong for rapidly revolving the stick in this central perforation, fire was produced as part of the morning worship to greet the sun, and also to bless the food of the household.

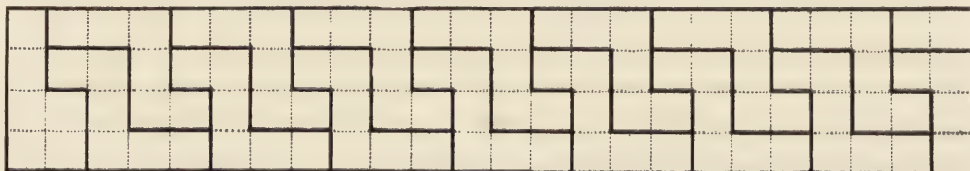
The simplest form of the cross was that of two, straight, equal lengths of wood, crossed and perforated in the center, and firmly fastened to a large flat stone, or to the level top of a tree stump.

Later, to the ends of the cross were added projections placed at right angles, presumably both to make the cross strong enough to withstand the rapid revolutions of the "pramatha" (the penetrating and revolving stick), and to elevate it above the surface of the altar; the latter for two reasons—one to permit placing combustibles beneath it, and the other to permit the deeper penetration of the pramatha.

In the improved form of the cross we have all of the elements of the Greek fret.

Naturally each piece of the cross became worn apart at the perforation, and the simplest form of the fret indicates that it was first made of these bisected members, fitted into each other in a manner readily suggested even to a child. In the fret the spaces represent the broken pieces of the cross, the dividing line of which will naturally claim attention.

The cross must have been freely used in its disconnected form. From placing many of these together, and from other apparent causes there grew the thousands of designs that are found in different localities. By the variation of the fret in the several countries one may also prove its origin.

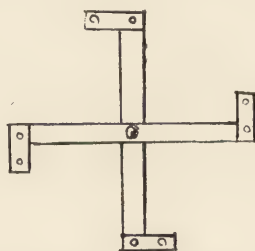


FRET FROM MEXICAN POTTERY [FIG. 6]

The Chinese show the early date of their emigration from the central home by the general use of the detached design, varied almost solely by the simplest fret.

This symbol of vital flame obtains representation in countless and complex stages and upon an endless variety of objects. What more fitting symbol to place upon that which was evidently intended to represent value, as in the case of the terre-cotta discs found at Troy? By his explorations at this place, Schliemann largely proved the truth of Homer's poems, and also proved the stage of civilization at each period of the city's growth. Added proof of its condition is, that in the older stages of Troy's existence are found detached symbols of the Divine fire, showing that the Trojans went out from civilization's home before custom had connected the symbols. In this evolving center progress was faster than elsewhere, and each wave of emigration carried the art, words, and methods of its time.

That the discs thus marked and found at Troy were not used as charms or ornaments, seems assured when we learn that such symbols were upon baked clay and not upon gold or silver. There were thou-



IMPROVED FORM OF CROSS [FIG. 2]

sands of gold and silver discs for personal adornment, but they bore other designs.

Doctor Schliemann's Mycenæan explorations were less rich in discoveries of the cross than his Trojan excavations, although some exquisitely perfect terra-cotta specimens were exhumed. At this place was found the cross with the added pieces extended to make a complete circle, the whole looking like a wheel with four very wide spokes with axle penetrations.

It might be as logical to believe that the circle was made first and the double diameters gradually added, as to believe that the ends of the braces were extended to form a circle if the cross were not in general use before the circle.

We have then, the cross as a very early symbol of the regenerating spark.

It is easy to conceive, also, that the combined symbol of the cross and crown, may have come from the Aryan cross and the circle, carelessly or designedly placed. The latter thought is presented as a theory, not as a conclusion.



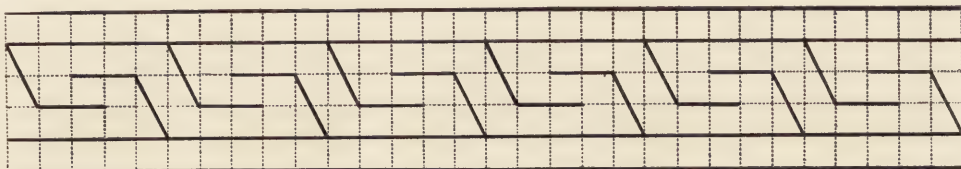
SIMPLEST FORM OF THE FRET [FIG. 3]

Not only were the cross and the fret marked according to the stage at which they left their home, but by the peculiar characteristics of the lands to which they were carried. The Moors and Arabs softened the square corners and added obtuse and acute angles, using decorative bands rather than detached designs.

In its earliest stages, like simple words and legends of the mother land, the elementary fret probably crossed the Pacific Ocean, both by the Aleutian Islands and by those of the Southern Pacific, recording itself and its time on the pottery and on the buildings of several races in America. The stages of growth are so marked as to assure one that they were not made upon this continent, but were the results of central growth, brought here by successive waves of immigration. The use of the sign in its detached form on the crude early pottery of this continent shows its early importation, while the later, connected, continuous designs that are arranged where the shape of the vessel or building demands the artistic emphasis of horizontal lines affirm a later branching from the parent stock.

A most peculiar and significant use is made of the sign of vital fire upon pottery found in various places between New Mexico and the Isthmus of Panama. Guatamala, thus far, furnishes the finest specimens. They consist of cups and vases, and those designed to represent female figures are marked at each breast with the Aryan symbol of life.

The fret is found upon the vases, cups, and implements of the Cliff-dwellers, and in this connection it is interesting to note that there is great similarity not only between the dwellings of the inhabitants of the Himalayan mountains and the Cliff-dwellers of America, but between their decorations, especially the fret and its various developments.



ARABIAN FRET [FIG. 7]

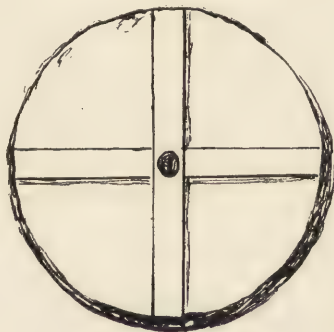
Yucatan shows the early detached forms, also the later united ones, as pure as the later Greek, while one of frequent occurrence in its ancient deserted cities shows a feature that might have developed under autochthonic influence, for here simple elements of the fret are united by sloping lines.

Mexican pottery shows an odd variety in which the eye detects the simple elements by following the spaces.

The fret from Mexico, shown in Figure 6, is also similar to one in use by the Arabians, where one detects the elements of the form by following spaces that meet from opposite borders.

But the fret in perfect Greek proportions, strange as it may appear, is found on pottery discovered at San Juan and other points in Mexico. Here the pottery is white, and the designs are done in black, of a material so lasting that the white surface is often the first to be destroyed.

Examples may be indefinitely multiplied to indicate the use and the wide diffusion of the fret, and also show how it tells of history, but



THE WHEEL [FIG. 4]

enough has been said to point the way for one who cares to carry out the thought.

Doubtless the Greeks, when they attained their higher civilization, originated mechanical devices for securing artistic proportions between the vertical and horizontal lines. The space for the ornament, whether in a band or detached elements, is divided into small squares, and the design is secured by following guide lines. In the simplest form of connected elements the outer horizontal lines are three squares long, the parallel middle line is two squares, and the vertical is either two squares or one square. (See Fig. 3.)

This simple form is very pleasing and restful to the eye. In this, also, counting from the opposite lines of the border, space repeats space.

A more complicated form, marked the climax of Greek art, in which the fret without the border is eight horizontal, by seven vertical squares.

The fret is especially adapted for use in horizontal bands, but when employed in patches loses its significance. An amusing instance of this is found in the temple at Jerusalem, where, in the ceiling of the gate of Huldah, the Jews under Roman sway, made a patchwork of decoration which included detached squares of the perfected horizontal fret, placed diagonally on the concave surface. An effort was made to connect this and other incongruous designs by Jewish vines and leaves, but the effect was a failure.

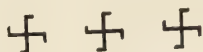
We are not disappointed because of this added proof that from the Romans came no clean, artistic impulse.

Doubtless the Greeks not only brought the fret to its highest development, but inaugurated its decadence by superfluous additions. Fortunately the best, as it is the simplest, survives.

Unmixed with other designs and in its simple and perfect form it still remains the most pleasing of all horizontal decorations, and its evolution from the symbol of the Divine spark marks the use of the Suastika as the highest symbolism for the highest decorative purposes in architecture.

EUNICE GIBBS ALLYN.

Dubuque, Iowa.



THE PALESTINE EXPLORATION FUND

THE *Quarterly* for July will show the progress of Mr. Macalister, under the new firman, and hereafter each quarter will bring its record of discovery.

The Fund is not exhibiting at the Jamestown Exposition because educational writers are not given prominence there, but it has made an exhibit in full at the International Exhibition in New Zealand, and received high praise as "an energetic society full of enthusiasm and resolve, which, working quietly and unostentatiously, is adding rich contributions to the sum of human knowledge."

While awaiting leave to resume work at Gezer, Mr. Macalister made a trip northward, and, among other matters, examined into the claims of Tel Hum and Khan Minyeh to be Capernaum. For the first time he applied the test of potsherds. At Kha Minyeh he could find none older than the Arab period and so rejected its claims. At Tel Hum, on the other hand, "the pottery shows it to have flourished at exactly the period of the glory of Capernaum." This is a superficial, but critical test.

In the *Biblical World* for June, Prof. Lewis B. Paton, lately director of the American School at Jerusalem, continues his series of valuable articles on *Jerusalem in the Earliest Times*, dealing here with

the city of David. He is strongly for the location on the hill Ophel, south of the temple site, but admits that the western hill may have been especially the residence of the Jebusites. The difficulty with the statement of Judges I, 8, that Jerusalem was captured and burned by the Israelites, he solves by attributing the verse to "one of the late editors of the Book of Judges," and by calling it "clearly unhistorical." The idea that there was a double city, denoted by the form of the name, he does not consider, but, in accounting for Absalom's dwelling two years in Jerusalem without seeing the face of David (2 Samuel, XIV, 28), he feels bound to accept the explanation that one lived in the eastern and the other in the western hill. Professor Paton believes that David saw the angel of destruction "on the western hill," and that the statement that the threshing-floor of Araunch, the Jebusite, was located on the eastern hill is due to "a desire to legitimize the site of the temple." All this is very interesting, but not wholly conclusive, because it handles the record so roughly. The final word is not yet said.

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EDITORIAL NOTES

PANDEAN PIPE.—An interesting discovery is reported from Alise-Saint-Reine, France, on the ancient site of a fortified city of the Gauls. It is a perfect specimen of a Pandean pipe, considered as belonging to the I century.

EXCAVATIONS AT HERCULANEUM.—Reports come that the Italian Minister of Education, Signor Rava, expects to begin work at Herculaneum, in July. A fund of \$3,000 is at his disposal, with the prospect of more, according to the needs.

EXCAVATIONS AT PÆSTUM, ITALY.—Reports from Naples mention the discovery at Pæstum of a magnificent roadway, 25 ft. wide, flanked by sidewalks. The pavement is of large stone blocks, which show deep ruts. A Doric temple to Neptune has been uncovered for a distance of 120 ft.

A CHURCH OF THE V CENTURY ON THE PALATINE HILL.—Reports from Rome state that the ruins of a V century church were found during excavations on the Palatine Hill. This was originally a private chapel dedicated to St. Cesario, and used by the first Christian emperors. The popes Sergius and Eugene III were elected in this building.

DEPARTMENT OF EGYPTIAN ART IN THE METROPOLITAN MUSEUM OF ART, NEW YORK CITY.—The trustees of the New York Metropolitan Museum of Art have established a department of Egyptian art with Albert Morton Lythgoe as curator. The Museum hopes to develop its present Egyptian collection by carrying on excavations in Egypt. Mr. Lythgoe sailed for London in November to purchase equipment and to visit Cairo.

GERMAN EXPEDITION TO ABYSSINIA.—The German expedition to Abyssinia has just made its first report to the Academy of Sciences in Berlin. The members of the expedition have been working in the ancient city of Aksum. They have made a plan of the city, examined the ruins, reexamined the old inscriptions, and found some not previously known. These latter, which take the history of Abyssinia back to the IV and V century B. C., have been copied, so that they can now be studied.

VALLETTA MUSEUM.—In the report of the Valletta Museum it is stated that among the work of the last year, various excavations were carried out which resulted in the discovery of fragments of painted pottery (1800-1500 B. C.). On the eastern limits of Zabbar trial pits were sunk in a circular field which looked very much like an amphitheater. Bones and teeth of elephants, etc., were found in a semi-fossilized state but well preserved:—[*Quarterly Statesment*, Palestine Exploration Fund.]

REMAINS OF A PREHISTORIC VILLAGE IN CENTRAL GERMANY.—Near Oberwaldbehrungen the remains of a prehistoric village have been found. It includes 29 funnel-shaped dwellings, which may possibly be 3,000 years old. The houses have a diameter of 26 to 32 ft., and are placed at tolerably regular intervals. By means of a trench of 10 ft. were found smoothly fitted building stones, with which the circular walls were laid for the defense against the invasion of soil and water. One large piece of sandstone lay before the fireplace, upon which ashes and charcoal were found.

WORK AT CAERWENT DURING 1906.—Mr. Ashby continued work at Caerwent during the past year, the principal work being the excavation of a large house of the courtyard type. There is evidence of rebuilding at two or more periods. The date is indicated by its encroachment on a street which had been obliterated by the amphitheater further north. Bronze objects were among the finds. One large jar carefully covered by an inverted mortarium and containing a series of three smaller vessels of red ware and two of black, and fragments of a pewter vessel was found.

EXCAVATIONS AT THEBES, GREECE.—According to reports, work at Thebes has brought to light the ruins of what is thought to be the palace of King Cadmus, the legendary founder of the city. Some pieces of sculpture, forming probably the pediment of the palace door, have been found. Colorless vases and 5 large amphoræ, intended for holding oil and wine, as well as wall pictures, some merely drawings and some in colors, were among the finds. Besides, bricks, pearl necklaces, gold, lead blocks, and other objects more than 3,000 years old are reported.

GREAT EGYPTIAN COLLECTION.—The collection of Egyptian curios which has been brought together by Mr. R. de Rustafjaell, which is to be disposed of in London, is of special interest because of the wide range, both in time and material, which it contains. It embraces objects from the earliest pre-dynastic times to the present. Among these is the praying board of Mahdi, found with the body of Khalifa after the battle of Orndurman, and it is popularly supposed to have been handed down through successive generations of chiefs from the great Mahomed.

PHONOLOGY OF THE HUPA LANGUAGE.—The University of California has recently published a pamphlet on the *Phonology of the Hupa Language*, part I, *Individual Sounds*, by Pliny Earle Goddard. Mr. Goddard's object in carrying on the studies here reported is to so record the Hupa language that it may be studied and compared with other American languages, even after it becomes extinct as a spoken language. He has employed various instruments, as well as photography to record the movements and positions of the different organs used in the various sounds of the language as spoken by a single individual.

WORK IN CYRENAICA.—M. de Mathusieulx has recently made explorations in the ancient Cyrenaica. Owing to the lack of encouragement from the Turkish government his work was restricted. He was able, however, to visit the Acropolis of Cyrene and to identify 4 ancient ports, which formerly were enriched by the trade in gold, ivory, and ostrich plumes from the Soudan—Apollonia, a marble-pillared shrine of Venus, and 40 steps descending to the amphitheater of its quays; Ptolemais, with its porphyry edifices behind the 3-mile circuit of its ramparts, and a giant aqueduct leading from mountain springs; Arsinoe, and Berenice, with its famed garden of the Hesperides.

SARDINIAN ARCHÆOLOGY.—In a paper on Sardinian archæology read before the British School at Rome, Dr. Thomas Ashby mentions menhirs and dolmens as found there, as well as in Corsica and western Europe, though absent in Italy and Sicily. The

most important prehistoric remains of Sardinia, he said, are the "nuraghi," of which there are more than 5,000 on the island. They are circular buildings, some 35 ft. or more in diameter at the base, and at least as high, constituted of large blocks of stone laid without mortar. They usually contain two chambers, one above the other, roofed by the convergence of the sides. Often bastions and towers were added. From their distribution and internal arrangements it seems evident that these were fortified habitations rather than tombs. Furthermore, tombs of two different kinds contemporary with the "nuraghi" are known to exist in Sardinia—the *sepulture dei Giganti*, similar to cromlechs, and the *Domus de Gianas*, chambers or groups of chambers cut in the rock. There are some important remains of the Roman road system on the island.

CEMETERY AT TAMISE, BELGIUM.—During the last 20 years numerous urns have been found in the northern part of Tamise, Eastern Flanders; so many, in fact, that it was supposed that the cemetery had been exhausted. But recently Louis Stroobant has reported to the Royal Museum of Brussels that work there had revealed more urns. The owner of the land, M. Dierckx, has given the government the exclusive right of excavating on his property, and the Royal Museum has undertaken systematic work. Six urns were found by them lying in ordinary soil at a depth varying from 3 to 6 ft. under a very continuous bed of sand, blackened as if by smoke, mixed with ashes and pieces of charred wood. The urns were not made by turning, and only one is ornamented. Two are provided with handles. They all contain ashes and debris of burned human bones, and one had in it pieces of the base of a vase. This cemetery is probably of a date prior to the Roman period, and seems to belong to the iron age. Near by passes the "Hooge Heirweg," the old road which led from Durme to the Ascaut. It is the same road which Van Dessel called the *diverticulum*, from Cassel to Burght.

JEWISH PAPYRI FOUND IN EGYPT.—The recent discovery of a remarkable collection of papyri at Assouan opens up an entirely new chapter in Jewish history, establishing, as it does, the fact of the existence of a Jewish colony at the southern boundary of Egypt as early as 472 B.C. This collection consists of 11 papyri and 5 pottery fragments. Sayce and Cowley, with the assistance of Spiegelberg and De Ricci, have edited the material. Under the name of Syene, Assouan is twice mentioned in the Old Testament, and there are two other possible references. The documents, of a legal nature, belonged to a colony of Jews settled at that point, and on the island of Elephantine, opposite. The papyri concern the transfer of lands, marriage settlements and divorce. They are carefully dated according to the Egyptian calendar, as well as the Hebrew, ranging from 472 to 410 B.C. The language is Aramaic, and the names used are thoroughly Hebrew in form.

The Old Testament name for God occurs both in composition and separately. This discovery leads scholars to believe that the Jewish fugitives, who carried Jeremiah into Egypt, may not have lost their identity, but may have left descendants. [Abstract from *Church Standard*.]

BULLETIN III OF THE DEPARTMENT OF ARCHÆOLOGY IN PHILLIPS ACADEMY.—*Bulletin* III of the archæological museum of Phillips Academy, Andover, Mass., has recently been published. The curator, Mr. W. K. Moorehead, gives an account of the founding of the department, which he follows by reports of his explorations in New Mexico, the Ohio Valley, Arizona, Kentucky, and Tennessee, carried on during the past 10 years, either for the founder of the museum or for the museum itself. The report is plentifully illustrated. The department of archæology houses in its fireproof building more than 55,000 objects, most of them of American origin.

An unexplained object of great interest treasured by the museum is a sheet of birch bark, found in a hollow piece of log, 3 ft. below the surface, near Fairfield, Iowa, in 1896. On the bark are certain pictographs or unknown characters. Mr. Moorehead is convinced of the genuineness of the relic as well as of its antiquity, for the log was evidently cut with a stone tool, and there are no marks of steel tools anywhere on it. The characters are not such as belong to any known language. The figures are very crude. On the log is a covering of gum or resinous material, which does not appear to be any substance known to the white man. The dimensions of the log are 8 by 5 by 3 in. Part of the bark was blown away when the log was opened. The remainder is as thin as paper, of natural color, and well preserved. The characters appear to have been drawn in blood, and have been fading upon exposure to the light.

ROMANO-BRITISH VILLAGE.—Four miles south of Cirencester, England, is a spot commonly called a "Saxon village," but which Mr. St. Clair Baddeley, after close examination, is inclined to consider of Romano-British origin of the IV or V century A. D. Ruins of small rectangular houses are apparent upon entering the wood, where the village site is situated. The walls of a typical one stand up 4 ft. 6 in. It consists of two rooms, enclosed by walls 2 ft. 6 in. thick, and connected by a small door measuring 1 ft. 9 in. One room has dimensions of 34 ft. 8 in. by 14 ft. 2 in.; the other 33 ft. 10 in. by 14 ft. 2 in. The smaller has a door 5 ft. wide, opening toward the south. At one time this door was stopped up with stones. Undoubted Romano-British pottery was found. "The floors evidence no signs of paving. The walls are well laid on a footing of larger stones." In the larger room is a circular pit 6 ft. in diameter and 4 ft. deep with rocky bottom. This, like the walls, is constructed of dry-walling. It contained several portions of the rim of a Romano-British "olla." There

is no herring-bone work, nor Saxon pottery, nor later remains. Ollæ were found here earlier. Excavations were also carried on in another part of the wood, where two layers of burnt earth had been removed some years ago. The spade soon uncovered a platform 8 ft. 10 in. square, containing a circular pit, 5 ft. in diameter and 6 ft. 6 in. deep. In this the remains of at least 22 Romano-British pots of various sizes, most of them with well molded lips, many of them with green glaze within, and some decorated with 5-line incised-wave-pattern, were unearthed. Handles seem to be absent. Some of the pottery must have been more than a foot high, judging from the fragments. Other spots have been examined with similar results—no Saxon objects, no Samian or pseudo-Samian ware. The colors of the pottery are yellow, red, and black. The owner of the land intends to have a further examination of the site made in the near future.

WISCONSIN ARCHEOLOGIST.—The *Wisconsin Archeologist* for the months from October, 1906, to January, 1907, contains a report of the field assembly of the Wisconsin Archeological Society, held with Carroll College, at Waukesha, Wis., in May, 1906. A number of the addresses are given in full. The whole trend of the assembly seems to have been toward arousing popular interest in the preservation of the antiquities of the state. The need of education along this line was strongly emphasized, mention being made of the small amount of work done in the colleges of the state to interest the students in American archæology, although the material is, in many cases, close at hand. The Milwaukee Museum has for years been doing a valuable work in circulating among the public schools of the city small representative collections. Each collection consists of a stone axe, celt, arrow and spearpoint, scraper and drill, and a copper point, all securely wired to the bottom of a wooden box and accompanied by an explanatory circular.

In illustrating the need of protection, Dr. W. L. Rankin mentioned finding that Lapham described and platted 13 mounds as existing on the hill of Carroll College, in 1855, while now only 6 remain entire and 1 in part. Six of those destroyed were outside the college property, so the college is not responsible. The mound partially preserved was an effigy, the tail being the portion left. Two skeletons were found in the part destroyed; one, apparently of a female, was near the center of the body, and the other, with larger bones, about at the head. These bones have been mounted.

The executive board of the Wisconsin Archeological Society has decided to buy several acres of land, upon which is situated the celebrated "man mound," located near Baraboo, Wis. "This aboriginal earthwork is without question the most interesting single effigy still existing within the bounds of our state. Its educational and other values are now such that its preservation is greatly to be desired."

"MARCHETS" IN BELGIUM.—In the province of Namur, Belgium, any considerable heap of stones is called a *marchet*. Some of these are very old and form ancient monuments, covering a burial or hiding the ashes from cremation. In some cases both are met with in the same *marchet*. Certain *marchets* were raised upon the sites of mud huts; others covered simply a fireplace or a feasting place. While the oldest of these date back to the first iron age, the presence of larger pottery, sometimes good ware made by turning, indicates that the erection of these monuments continued down to the time of the Roman dominion.

Marchets were formerly a prominent feature of the plain north-east of Pitigny. Most of them have been excavated or used for ballasting roads, but two are still important ruins. One was sacked some time ago by a road builder, who is said to have found an urn. Aside from that, only a few fragments of human bones and some pieces of coarse, poorly baked pottery, have been discovered. The other, also, appears to have been excavated prior to the work done in 1905 by the Royal Museum of Brussels. Some coarse pottery fragments and remains of charred human bones, indicating that this was a *marchet* of cremation, were all that the Museum found.

At Boussu-en-Faône is a circular *marchet*, 10.0 yds. in diameter and 2.28 ft. high. A skull in good condition, though in fragments, was first found. Separated slightly from the skull were other bones, in such a position as to indicate that the corpse, evidently simply laid on the ground and covered with stones, was placed with his head to the west. Further search revealed a pile of debris of human bones burned upon the ground with no trace of vault or definite arrangement of stones. A little over a yard from this last was a second skeleton, placed in the same direction as the first. The skull was not as well preserved as the first, but the other bones were much more complete. Here the corpse had been placed in a rude vault, very irregular, measuring 2.08 yds. by 1.8 ft. by 7.87 in. The body appears to have been enclosed by large stones. Some stones of equally large dimensions cover the skeleton, but without implying clearly that the builders intended to form a protective covering over the remains of the deceased, for there are a number of stones of the same size scattered through the *marchet*, so the presence of some above the skeleton may be due only to chance. [Translated and condensed from the Bulletin of the Royal Museum at Brussels.]

WORK IN THE GROTTA OF SPY.—The Royal Museum of Brussels continued work in the Grotto of Spy during 1906. Three distinct bone and flint-bearing layers were excavated by means of trenches. The upper, averaging 31 to 35 in. in thickness, lies directly under a bed of vegetable mould, and is composed of yellow rubble drift, darker toward the bottom. It contains a number of flints, but very few

animal bones (*Elephas primigenius*, *Rhinoceros tichorhinus*, *Rangifer tarandus*, *Equus caballus*, *Canis lupus*, *Canis vulpes*). Some broken bones, a piece of pottery, some awls in bone and wood, and scollop shells (*Petonculus pilosus?*), each with a hole for suspension near the hinge, were found. Charcoal was scattered through the whole mass, but no fireplaces appeared.

Directly below this yellow layer, is a bed of red rubble drift, resting through part of its extent upon the rock bottom of the cave. Its thickness varies from 8 to 27 in., because of the irregularities of the rock. Fireplaces *in situ* with charcoal and remains of feasts; quantities of flints; bones belonging to the following species: *Elephas primigenius*, *Rhinoceros tichorhinus*, *Bos primigenius*, *Equus caballus*, *Ursus speloeus*, *Hyena speloea*, *Canis vulpes*; fragments of pottery; a bone awl; parts of ivory ornaments; a canine tooth of a lynx, perforated at the root so as to be suspended, and the lower part of a "staff of command" made from a reindeer antler, were among the finds at this level. The red color, characteristic of this deposit, is due to fragments of oligist and the presence of manganese.

The lowest bed revealed a fireplace, flints and bones of *Elephas primigenius*, *Rhinoceros tichorhinus*, *Bos primigenius*, *Equus caballus*, *Cervus elaphus*, and *Hyena speloea*. It will be noted that mammoth and rhinoceros bones were found at each of the 3 levels, but in the upper bed only were they associated with reindeer bones.

In the yellow bed, stone work was represented by nuclei and very abundant flakes, by flake scrapers, sharpened flakes, awls (or arrow heads?), and two very small flakes with dorsal cutting, both found in the upper part of the bed. In the red bed were found nuclei, most of them small; flakes of all sizes, flake scrapers, double scrapers, burins, and scrapers of a special type. The third level yielded no flakes, but instead retouched fragments, a little piece of amygdaloid, an awl, and a scraper of special form.

The flint of which most of the implements found at this lowest level are made was taken from an eolithic bed, situated opposite the grotto, at the place called Fond-des-Cuves. The re-worked eoliths are less numerous in the middle bed and lacking in the upper, where scarcely any except those of distant origin appear. In the beginning, then, the man of Spy used the flints which were found, so to speak, within reach of his hand, and it was only much later that, thanks to commercial relations, he could procure raw material of better quality. [Abstract from *Bulletin des Musées Royaux*, Brussels.]

EXCAVATIONS ON THE ISLAND OF DELOS DURING 1906.—M. Holleaux, director of the work on the Island of Delos for the French School at Athens, has kept more than 100 men at work during the last season removing debris from the Peribole or temple precincts, the region of the theater, the neighborhood of the club of the cult of Neptune, the Gate of the Hornes, and the Sacred Lake.

The most curious find made in the course of the excavations was a rocky esplanade, north of the sanctuary, and its 5 colossal lions carved out of Naxos marble, and placed at regular intervals. These specimens are unique in their way, and are evidently of ancient design, as the roughness and simplicity of the workmanship shows. The date may be as far back as the VII century B. C. It has been suggested that they may have formed part of a votive offering of Cræsus, king of Lydia; if so, the date is fixed at the middle of the VI century B. C.

A discovery belonging to a still earlier age, probably the XII or XV century B. C., is that of a Mycenæan tomb.

Of later date is a head supposed to be of Dionysus. The nose is mutilated, but nevertheless the expression of the face is striking. There is also a marble Polymnia, a replica of the statue by Philiskos, of Rhodes, in the II century B. C. The nobility of attitude and sobriety of workmanship in the draperies place it with the best reproductions of this type. A terra cotta head of Herakles is interesting because of the fact that the hero is represented as beardless and crowned with leaves, more graceful than virile. A large number of terra cotta braziers have been found, many of them in fragments. One, almost complete, is simple in ornamentation—fret work with a floral design around the rotundity of the upper portion. Some think that such braziers were originally used for heating houses, but eventually became mere ornaments.

Among other specimens of ceramic art, is a tragic mask, a foot-shaped vase, which copies exactly each detail of the shoe, and a lamp in the shape of a miniature boat with the head of a shark or sea dog on the prow, and a raised poop, like the tail of some fantastic fish.

A bas-relief from the imperial epoch represents a procession of divinities, Hermes, Minerva, Apollo, and Diana. A row of ox-heads at the top indicates that this was originally a part of an altar. It is a specimen of the style of art which sought to imitate the simplicity of costume and attitude of the artists of former times.

The great north door of the sanctuary on which the name of Antigone Gonatas, king of Macedonia, was found, was dug out; also a circular monument to the ancestors of certain Athenians, and several houses near the theater. One of these residences is called "Cleopatra's House," because of a statue and inscription found in it. The inscription is to the effect that Cleopatra, daughter of Adraston, an inhabitant of Myrrhinonta (a small town in Attica), erected a statue of her husband, Dioscourides, who gave two silver Delphic tripods to the temple of the Delian Apollo. The statue of Cleopatra is there, as well as that of her husband. Probably the two originally stood side by side on the pedestal bearing the inscription. The date is fixed as the II century B. C., by the name of the archon Timarchus, mentioned in the inscription. The partially freed Doric columns still give the house an imposing aspect.





PROFILE OF GREEK FIGURE AT VASSAR [FIG. 2]

RECORDS ^{OF} THE PAST

VOL. VI



PARTS VIII-IX

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GREEK DRAPED FIGURE AT VASSAR

VASSAR COLLEGE has recently received from Mrs. F. F. Thompson a gift of three antique marbles, a large draped statue of a woman,¹ a high relief with a Roman portrait head executed in the round, and a bust surmounted by a head in the style of Polykleitos. The appearance of all three marbles is deceptive, owing to copious and erroneous restorations, for which neither the donor nor the present possessor, but the collector of the Renaissance time is responsible. When the Giustiniani collection, to which the marbles once belonged, was brought together, people were unable, or at least unwilling to enjoy the beauty which a broken antique possessed. They desired to have entire statues in their collections, and since hardly any ancient marbles are preserved intact, the remains had to be pieced to make a new whole. The Renaissance sculptors, moreover, in spite of their skill, did not understand the simplicity of Greek sculpture, and whether they had to do with a Greek original or a Roman adaptation, restored both according to very conventional prejudices regarding characteristic poses, and in so doing were guided by the wishes of their employers. These latter, if they already possessed a Nymph, or an Aphrodite, but lacked a Demeter, had their new torso restored as Demeter, unconcerned as to whether it really was a Nymph or Aphrodite, or anything else. The most apparent defect of such erroneous restorations is the false note which

¹Mentioned Matz-Duhn, *Antike Bildwerke in Rom*. No. 724; and pictured Clarac de poche (Reinach, *Répertoire*, Vol. I), plate 433, No. 3.



FRONT VIEW OF GREEK FIGURE [FIG. 1]

they introduce into the rhythm of a statue. This is very obvious in the Vassar large draped statue, Figures 1-3. She has been advantageously placed in the rotunda of the college library, but from no point of view does she offer an altogether pleasing appearance. There is no unity in the lines of the figure; her proportions seem wrong, and her arms especially are disturbing, if taken in connection with the rest of the body. They are faulty restorations and should be imagined away. Equally erroneous is the restoration of the lower part of the drapery and the feet. The left leg was bent in the knee, as is clearly seen in Figures 1, 2, and 4, where the knee appears between the two ends of the outer garment. The thin under garment, moreover, fastened by the girdle about the slender form, could not have fallen in the heavy folds now visible below the mantle.



BACK OF GREEK FIGURE [FIG. 3]

The head of the statue (Figure 5), singularly attractive in spite of its modern nose, was broken at the neck, and has been added to the torso at a wrong angle. It thus silences the beautiful rythm which surges even to-day through the exquisite torso (Figure 6).

Not to speak of many minor restorations, such as the faulty joining of the ends of the mantle in the lap of the figure, only one more criminal act of the restorer needs mention. The right hip of the figure originally pressed out to the right (Figure 3), and had been damaged or broken away. Instead of piecing the statue the restorer decided to work over the remaining parts to a semblance of accuracy. The result has been an irretrievable loss of beauty to the line which originally curved from the shoulder along the side of the body and over the hip, down the leg, where it was gracefully interrupted by the projecting folds of the cloak; and, secondly, a hip which for the anatomy of this woman is inches too low.

Granted then, that these several errors of the restorer have been unable to give back to the broken marble the nobility of its original appearance and have almost hidden from view the charms that still remained, these charms nevertheless are so irresistible that even the casual observer can not escape them. Was sweet dignity ever expressed with simpler means than that which shows in the upper part of this body (Figure 6)? Or was heavy drapery ever cast in more magnificent folds and with greater restraint, than the mantle which, fallen from the shoulders, shrouds the legs of this virgin—goddess (Figure 4)?



DRAPERY OF FIGURE AT VASSAR [FIG. 4]

The student of art naturally asks who was the sculptor of this statue, and in his endeavor to answer this question desires to define the date of its origin. That the statue was Greek and not Roman is certain. Whoever knows ancient art feels this instinctively. In addition there are indications of a technique, which finds its parallel not with the Romans, but with the Greeks. I refer to the carving of the folds. The Romans and later restorers made long, narrow, and fairly deep grooves in the folds of draperies by means of a square-grooved chisel, which they ran the entire length and then abruptly removed. This gives a peculiar sharp termination and deep shadow to the end



TORSO [FIG. 6]

of a fold. The Greeks never used this method except in places which were not to be seen. The drapery of the Vassar figure shows such folds only in those parts which are undoubted restorations. The treatment of the fine folds of the under garment about the breasts, moreover, finds many parallels in Greek sculpture, and none in that of the Romans.

The delicate, but by no means primitive rhythm, of the torso precludes any date earlier than the end of the V century,² while one definite indication would seem to point to a date even later than Praxiteles. This is found in the artistic use of the drapery. The artist wished to carve a draped figure, but instead of conceiving his figure as a nude plus a garment, he gave it the contours of the nude on which he carved, in relief as it were, the folds of a thin chiton. Not even the girdle projects, but is indicated by heavy grooves above and below it (Figures 3 and 6). The resulting shadows give rise to the illusion that they were cast by the projecting girdle.

Drawing conclusions from these observations as to the general attitude of the artist toward his art, one finds that it was akin to that of him who carved the Aphrodite of Melos.³ This latter figure is variously dated either at the end of the IV century before Christ, or in the long Autumn Days of Greek Sculpture from the death of Alexan-

²Contrast it e. g. with that of the Barberini Hera, *Handbook of Greek and Roman Sculpture*, by E. von Mach, plate 105.

³Compare the Aphrodite of Melos with the so-called Aphrodite of Arles, probably the Spinning Girl of Praxiteles, *Greek Sculpture, Its Spirit and Principles*, by E. von Mach, plate 35, figs. 1 and 2.

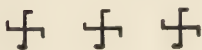
der to the conquest of Corinth. The endeavor to find the date of this statue more accurately, and consequently to ascertain the name of its artist would be futile, because there are not sufficient data to prove a case. At best one could make only a plausible guess. One thing, however, is sure, Vassar College possesses in this statue a singularly exquisite example of good Greek art.

EDMUND VON MACH.

Cambridge, Mass.



HEAD [FIG. 5]



MAYA RUINS IN QUINTANA ROO

COUNT MAURICE DE PERIGNY, the second explorer to enter the Maya village of Ycaiché, state of Yucatan, has rendered a very valuable service to the cause of archæology by his important investigations in Quintana Roo, and the remarkable discoveries which rewarded his zeal after many obstacles were overcome and countless contiguous hardships endured. But as a result of his explorations he experienced the satisfaction of finding 4 groups of ruins which were hitherto unknown to the civilized world of the present day, and his discoveries will be described at length in the reports which he will make to the National Museum, of Mexico City, and the Geographical Society of Paris.

The 4 groups of Maya ruins recently discovered by Count de Périgny are in the southern part of Yucatan, some distance from the Maya village of Ycaiché. Although they are not as well preserved as the Maya ruins of northern Yucatan, their simple style of architecture—still strong and effective, though but the crumbling remains of an ancient civilization—leads Count de Périgny to attach considerable importance to their discovery. At any rate they carry out the theories

already advanced as to the well-developed state of society which existed in America prior to the Conquest.

Though Count de Périgny is not prepared to state that the Mayas were directly connected with the Toltecs from Palenque, he thinks that his discoveries will demonstrate the fact that the Mayas of southern Yucatan may be identified with the Mayas of northern Yucatan, thus pointing out a distinct line of migration on the part of the Mexican Indians.

One of the chief reasons why the unknown parts of Quintana Roo have hitherto been unexplored is easily accounted for by the fact that a large number of the Mayas are still in a state of rebellion, and extremely hostile in their attitude to strangers. But Ycaiché, a village of about 400 inhabitants, has been pacified by the government, and has for its chief magistrate General Tun, a Maya chief.

Then there is another unfortunate feature which makes the thorough exploration of Quintana Roo a matter of much difficulty—a temperature that makes the stranger so susceptible to fever. It is so very hot in the daytime and so very cool at night that the average stranger is apt to contract fever in a short time, and it was this that caused Count de Périgny to return to Mexico City before he had entirely completed the investigations of his last trip—in order to recuperate from a very high fever. He was seized with a fever while at a distance of several days from Ycaiché, and but for the faithfulness of the Indians his fate would have been a matter of short notice.

Among the difficulties which heightened the Count's satisfaction with the success of his explorations was that obstacle commonly known as work. After a few days with the Mayas it became painfully apparent to Count de Périgny that if anything was to be done he had to do it himself—or at least take a leading part in the procedure. When it came to clearing away the trees and undergrowth—and sometimes this meant several days of hard labor before a glimpse could be obtained of the surface of a ruin—he had to take the big end of the job in order to show the Mayas that it was worth while. Otherwise, they would have had their doubts as to the possibility of anything worth while being discovered—if it was a matter of labor in the tropics.

RUINS OF CHOCOA

The recent trip of Count de Périgny was his third to the peninsula of Yucatan. On his trip this year he left Payo Obispo, at the mouth of the Rio Hondo, and went by boat to Esperanza, from there proceeding to the village of Ycaiché. He had planned to go to the ruins of Nacun, which he had discovered last year in Peten, Guatemala, but subsequent events led him to postpone this trip.

It was while in Ycaiché that the count heard of two pyramids at some distance from the village, and after considerable difficulty finally

located them. When the trees were cut down and the undergrowth removed, it was found that the ruins were grouped in a half-circle of edifices and monuments, almost entirely eaten away by the ravages of time, though on the side of one of the ruins the remains of a stairway of stones was fairly well preserved.

On account of the proximity of a spring of hot water a short distance from these ruins, Count de Périgny thought it appropriate to call them the ruins of Chocoha, which is the Maya designation for *agua caliente*.

RUINS OF RIO BEQUE

But before making the more extensive exploration which he contemplated Count de Périgny decided to examine the ruins of Rio Beque, which he had previously discovered 4 days north of Ycaiché. As he does all of his traveling on foot in order to take notes of the topography and other essentials of exploration work, this side trip was not the beautiful jaunt that it may appear to be on the map. His baggage was borne by pack-mules, but he walked with the Indians who accompanied him.

At the ruins Count de Périgny had some trouble with his Indians, who were afraid to climb to the top of the edifices, and consequently he was compelled to do most of the work himself. He found the façade on the north of the largest edifice to be 40 meters in length and over 8 meters in height. A large part of the façade had been worn away, and it was easy to see the remains of a great number of interior chambers as well as the triangular arch which is characteristic of the architecture of the ancient Mexicans.

The ruins of Rio Beque, named by Count de Périgny after the river Beu Beque, are similar to the other ruins of southern Yucatan. At the foot of these ruins he found a few blocks of stone with sculptured signs, but as they were in very bad shape he has no theory as to their import. There is also evidence that the façade of the main edifice was elaborately ornamented with blocks of stone of a similar design.

Count de Périgny is not absolutely certain as to what the main edifice of the Rio Beque ruins was used for in its former period of habitation, but he says it was probably the temple of Maya priests or a *casa de cacique*.

NOHOCHNA AND YAABICHNA

After his return to Ycaiché Count de Périgny decided to devote the rest of his time to the exploration of the three groups of ruins which he had found near the Laguna de Hon, and set out for Xcopen. The first of the groups which he investigated he has designated as Nohochna, the Maya for *casa grande*—so called on account of its chief edifice, which appears to have been a great mansion in its days of grandeur.

These ruins were found to be decidedly different from Uxmal, Chichen Itza, and other ruins of northern Yucatan, and have little similarity to the ruins of Rio Beque. They have the same simplicity of lines, but the principal façade faces the east, being 15 meters high and 18 meters long. It is ornamented with pilasters.

At a distance of about 500 yards from the ruins of Nohochna another group of lesser importance was discovered, and after another day of exploration a very high pyramid was found in the same region. A monument surmounts the summit of this pyramid, and the disintegrated portions of the walls reveal a remarkable number of interior chambers. In fact, Count de Périgny decided to designate this group as the ruins of Yaabichna—the Maya for house of many rooms.

It was on the wall of one of these rooms that the Count discovered, after groping his way through the underground passages, a large number of Maya hieroglyphs. As his only light was furnished by a torch in the hands of an Indian his investigation of the interior was not very easy, but he observed that the serpent's head appeared as one of the most numerous signs—which seems to be a characteristic sign among all the ancient Mexicans.

RUINS OF A MAYA TOWN

At a distance of about 8 leagues from these two groups the ruins of what seems to have been a small city were discovered, and Count de Périgny has designated these ruins as Nohcacab, which is the Maya for a large town. An avenue about 10 meters wide and nearly 200 yards long leads to a pyramid, which was probably a temple of the Maya priests. It measures 15 meters at the base, 5 at the summit, and is about 16 meters high.

On the opposite side of this temple are the ruins of the town, built in the form of a square, with an interior court. These ruins have been badly damaged by the rains which are so prevalent in that region. The principal façade faces the north and east, being approximately 40 meters in height.

The discovery of this town, which has been dead to the world for centuries, satisfied Count de Périgny as to the importance of his investigations, and tended to confirm his theory that the ruins of southern Yucatan demonstrate the fact that the region was at one time inhabited by Indians who might have worked out a better civilization of their own, but for the invasion of the European. In fact, he thinks the special style of architecture characteristic of these ruins is a remarkable tribute to the extinct civilization of the ancient Mexicans, even though the hand of old Father Time has been ruthless in its wanton wreck of the past.

LE COMTE MAURICE DE PERIGNY.*

Mexico City, July 23, 1907.

*This interview, although left in the third person, was revised by Count de Périgny and forwarded us for publication, so that it has the authority of a signed article.



SWASTIKA ON THE CLIFFS ABOVE A PUEBLO RUIN IN CANYON DEL MUERTO, ARIZONA



THE SWASTIKA

TO ARCHÆOLOGISTS and students of religion and art, the Swastika has been for many years a fascinating but tantalizing study. It is the theme of a no mean literature, its bibliography bearing the names of some of the world's best-known scholars.¹ The name and symbol are now becoming generally familiar because of the introduction everywhere for sale of all sorts of Swastika jewelry, and even table wear. A popular magazine, not long ago, started a Swastika club in connection with its subscription work. The objects sold are usually accompanied by some brief attempt at information and an appeal to superstition. "To the wearer of the Swastika will come from the four winds of heaven good luck, long life, and prosperity." "Swastika, proof against hoodoos." One

¹For bibliography up to 1894, see the comprehensive, fully illustrated work, *The Swastika*, by Edward Wilson, Curator Department of Prehistoric Anthropology, U. S. National Museum. Annual Report of the Smithsonian Institution for the year ending June 30, 1904. See, also, *The Migration of Symbols*, by Count Goblet d'Alviella, an alluring classic often quoted. London, 1894.

of the oldest symbols, its beginnings reaching to an antiquity long preceding history, its use continued to some degree through the ages, it has suddenly been given new life in our own land by this amulet-wearing fad.

The name Swastika, given this unique form of cross, may be called modern, since it is not the original name, and might be applied to any amulet. This name can be traced to about the IV century B. C. There is general agreement that the word is Sanscrit, from *SU*, equal to the Greek *eu*, "well," and *AS*, "to be," form *asti*, "it is," with suffix *ka*, the whole popularly meaning "good luck."²

This name is now accepted practically in all countries, though its use has been objected to as implying too strongly that India was the original home of the symbol. Other names less familiar in this country have been given it, one of the most widely used being "Fylfot," meaning "many-footed." But Murray and Bradley define this first as "Fill-foot," referring primarily to a pattern or device for filling the foot of a painted window, and then "a name for the figure, called also cross-cramponée, and identical with the Swastika of India."³ Gam-madion (so called because the extremities are bent back so as to form four Greek gammas joined at the base), tetraskēle, and other names have been applied to the symbol, but doubtless it was in existence long before any of the present names, before the Buddhist religion and before the Sanscrit language. It is to be noticed further that the name Swastika gives no light as to the original meaning of the symbol, but is only a designation appropriate to a late stage of its history, "Swastika, a mystical mark made on persons or things to denote good luck."⁴

The wide distribution of the Swastika symbol, including almost every country, is a remarkable fact. As an antiquity it has been found in Japan, China, and Tibet, probably having been adopted in these countries with Buddhism from India where it is quite frequent, especially associated with Buddhist objects.⁵ Persia affords examples, though it is said to be wanting among the more ancient remains. Dr. Henry Schliemann's discoveries of the Swastika at Old Troy, in the Third City, but not anterior, the city he considered the Homeric Troy, place it, at that point, at a period 1200 or 1300 years B. C.⁶ Most of

²This is Prof. Max Müller's definition, given in his letter to Dr. Schliemann, *Ilios*, pp. 517-521. It would correspond to the Greek *εὐεστική*. The *New International Encyclopedia* devotes nearly two columns to the Swastika, translating the word "weal-making."

³A *New English Dictionary on Historical Principles*, Oxford, 1901, Uncompleted.

⁴Sir Monier Williams, *Sanskrit Dictionary*.

⁵Mr. A. C. Haddon, *Evolution in Art*, as illustrated by the life-histories of designs, Charles Scribner's Sons, 1895, and referred to below, refers to the unscrupulousness of Buddhism, in appropriating to its own use the images of worship paid by natives of India to the sun, to fire, or to serpents, ascribing the rites to its own traditions. *Ibid*, as regards distribution, pp. 282-287.

⁶For a description of the many hundreds of objects presenting it, and general treatment of the symbol, with dissertation by Prof. Max Müller, see *Ilios, The City and Country of the Trojans*, Dr. Henry Schliemann. Harper & Bros., N. Y.

the objects bearing the symbol were small whorls.⁷ The Swastika is found in the Caucasus, in Greece, and the adjacent islands as a mint mark, on vases and various sorts of prehistoric pottery, and in decorative work. In Italy it is believed that some of the earliest examples of the Swastika have been found on the Hut-urns.⁸ Early Etruscan vases, for which a date is claimed of from the XII century B. C. to 540 A. D., bear Swastikas. Some students give the date of the arrival of this people in Italy as about 1044 B. C. Hundreds of examples are found on Christian tombs in the Catacombs of Rome. In Austria, Germany, Switzerland, Scandinavia, in ancient mounds on early art work, bronze spear-points and other objects of bronze and iron,⁹ the same symbol appears. France affords examples. In Great Britain it has been found on Celtic funeral urns, Roman votive altars, Christian sepulchres, and other objects. In Iceland, Coomassie, Africa, but only on some bronze ingots, in Central America, Mexico, and South America examples appear. In North America there are many interesting specimens found among the remains of the aboriginal Indians in Illinois, Ohio, Tennessee, Mississippi, and some other states. Prof. Clarence B. Moore, of the Philadelphia Academy of Sciences, among his many other noteworthy archæological finds, made remarkable discoveries in the pre-Columbian mounds at Moundville, Ala., as recently as the spring of 1905. These mounds, belonging to the copper age, contained among many other objects of value, sheet copper ornaments on which the Swastika occurs, with skeletons which have almost disappeared through age; a water bottle bearing the same design; a gorget with 3 circular lines surrounding a Swastika, and a similar ornament with the symbol within many circles; also a pendant 6 in. long, bearing a Swastika with a triangle below it.¹⁰ It is an interesting fact that thus far the Swastika has not been found in Babylonia, Assyria, Phœnicia, or Egypt as native objects, but only as introduced, for example, on vases from Cyprus and Greece.

The theory of the independent origin of the Swastika quite breaks down in the presence of the facts stated, and the interesting questions of the relations and migrations of nations or persons comes to the front. A Tennessee shell mound ornament, bearing a Swastika, is said to duplicate another found in Sweden. It may be added that the

⁷As this word is omitted from a number of dictionaries and cyclopedias it deserves definition here. A whorl is a weight or fly, usually circular, made of stone, wood, or terra-cotta, an inch or two in diameter, with a hole, and fastened at the lower end of the spindles of spinning wheels to give proper weight and steadiness. It has also been called Pixy-wheel.

⁸Hut-urn, a type of cinerary urn of pottery found in sites of archaic Italic civilization anterior to the Etruscan or other foreign influence. Ossuaries, in the shape of circular cabins with conical roof, reproducing on small scale the wicker huts of the people of that period. (Century Dictionary.) However different in purpose, these Hut-urns can not but bring to mind the Soul-houses of Egypt, so recently described by Petrie, and which were also models of the houses of their period, 3700-3300 B. C.

⁹See *The Viking Age*, Paul B. Du Chaillu, 1889.

¹⁰For full description and plates, see Prof. Moore's elaborate report, *Certain Aboriginal Remains of the Black Warrior River*, etc. By Clarence B. Moore, Acad. of Nat. Sci. of Philadelphia, 1905, and also *The Treasures of Prehistoric Moundville*, by H. Newell Wardle. Harper's Magazine, Jan., 1906.

very form itself of the cross, not easily made, is not one likely to have been invented by many and widely-separated peoples. Professor Petrie gives a page to the penetrating effect of design and mingled influences of land on land, with interesting illustration, in his *Egyptian Decorative Art*. One of the specific achievements of Count Goblet d'Alviella is his demonstration of the fact that religious symbols have not originated independently, but have been carried from people to people.

There is also what might be called the modern use of the Swastika, a survival representing another and possibly a degenerate stage in its history. It becomes an inheritance used in ignorance. In Turkey and Persia the design has been and is worked in rugs, and can be seen in many such in our own homes and shops. Mr. Perceval Landon, in his story of the recent English expedition, *The Opening of Tibet*, says that the envoys from Lhasa to the English camp had saddle-cloths of Swastika-patterned stuffs. "Invariably there will be found outside a house four things, among them the white and blue Swastika, surmounted by a rudely-drawn symbol of the sun and moon. This sign marks every main doorway in the country."¹¹ Inlaid in the courtyard, in front of the temple at the Monastery of Jang-kor-yangtse, was a boldly-designed Swastika.¹² It is used by some Buddhists as a sign of benediction. The Jains, an offshoot, claim to use it as a symbol of resignation, contentment under all circumstances, in keeping with the strict meaning of the name.

The Navajo, Pina, Sac, and Apache Indians weave the sign in rugs and baskets, and some of them hammer it out of silver for the trade, as is also done in Mexico. The Kansas and Osage Indians are said to introduce the symbol on charts in mourning ceremonies. Work baskets made for women in Japan sometimes show the same. The appeal to its mystery, novelty, and to superstition is made to minister to its sale in many forms.

The question as to where the Swastika first originated is one impossible to answer at present. There are advocates of many places and times. It has been associated with the bronze age; making its way east and west with that age. Of course the Orient, and India especially, was formerly claimed as its birthplace. Mr. W. H. Goodyear presents Greece as an earliest home and suggests that it was an independent and definite shaped pattern belonging to the Greek geometric style.¹³ He endeavors to show that theories based on Buddhist art, which were unknown before the III century B. C., have no weight whatever for early Hindu antiquity. "The supposed Indian home of the Swastika is no more." "The true home is the Greek geometric

¹¹*The Opening of Tibet*, by Perceval Landon. Am. Edition, Doubleday, Page & Co., 1905.

¹²*Ibid.* p. 299.

¹³*The Grammar of the Lotus*, a New History of Classic Ornament as a Development of Sun Worship. William H. Goodyear. London, Sampson Low, Marston & Co., 1891.

style,¹⁴ as will be immediately obvious to every expert who examines the question through the study of that style." He refers also to the overthrow of the theory, which he terms a delusion, which placed the home of the Aryan race in Asia.¹⁵

Mr. A. C. Haddon, to whose *Evolution in Art* reference has already been made, gives an interesting presentation of the subject of religious symbolism. Discussing the Swastika, he says, regarding Mr. Goodyear's argument: "The sequence which he seeks to establish appears to me to be nothing more than the birth of an analogy." "The Trojans came originally from Thrace. There is a plausible tradition to the effect that the ancestors or predecessors of the Etruscans, and in general the earliest known inhabitants of Northern Italy, entered the peninsula from the north or northeast after leaving the valley of the Danube. It is, therefore, in this latter region that we must look for the first home of the gammadion."

Mr. Paul N. Hasluck, referring to the use of the symbol in Greek art, and suggesting that the "Greek pattern" is founded on the Swastika, adds: "It is probable, however, that the Greeks simply used it decoratively, as they did certain other symbols, without knowledge of its hidden signification."¹⁶

The Troad has been claimed as the original home. The Hittites have found an advocate. The Hut-urns of Italy, found under ancient lava and antedating the Etruscan settlers, may yet prove useful in locating the birthplace of the Swastika. As used by the Brahmans and Buddhists, that may be called only a detail of the migrations of the symbol as it was in existence before those religious bodies. The places mentioned do not exhaust the list of claimants.

When we seek for the primitive meaning of this cross we are on even more debatable ground. Theory after theory confronts us, the advocates of widely differing views arguing at times with astonishing positiveness, and adding assertion to evidence. The subject becomes, indeed, fascinating, though it be in some of its phases as mysterious as Melchisedek. All may agree, however, that the Swastika was made at the first with a definite intention and meaning, passing from tribe to tribe. In considering some of the theories we may begin with that interpretation of the symbol given by Mme. H. P. Blavatsky, so long a leader of the theosophical movement. It is given simply as representative of a class of mystical, esoteric views.

"The Suastika is the most philosophically scientific of all symbols, as also the most comprehensible. It is the summary, in a few lines, of the whole work of creation, or evolution, as one should rather say, from Cosmotheogony down to Anthropogony, from the indivisible unknown Parabrahm to the humble moneron of materialis-

¹⁴From 1500 or 1600 B. C. to 700 or 600 B. C.

¹⁵See Isaac Taylor, *The Origin of the Aryans*.

¹⁶*Decorative Designs of all Ages for All Purposes*, Paul N. Hasluck. Cassell & Co., 1899. See also in regard to spirals and frets, Petrie, *Egyptian Decorative Art*.]

tic science, whose genesis is as unknown to that science as that of the All-Deity itself. The Suastica is found heading the religious symbols of every old nation. * * * It is at one and the same time an alchemical, cosmogonical, anthropological, and magical sign, with seven keys to its inner meaning."¹⁷

Well argued claims have been presented that the device was first suggested by forked lightning, and so became a representation of the weapon of the air-god, and the emblem of Zeus or Jupiter as supreme. In Scandinavia it was the hammer of Thor, and some assert found its beginnings in that country. Again it is held that the process of "churning" the sacred fire with crossed sticks led to the use of the form as a sacred symbol representative of the act or of the "vital flame" itself.¹⁸ Again, by a series of evolutions, it has come from the representations of that "fetish of immemorial antiquity," the Lotus. Again, it represents the four cardinal points, and is the supreme symbol for the cult of the cardinal points.¹⁹ By it the four winds of heaven are indicated. It was suggested by the arrangement of stars at certain seasons of the year. In some parts of the world it was evidently a symbol of the earth. It is said to represent in its short arms Time, in its long ones Eternity.

One other theory seems to be so well supported by various lines of evidence as to warrant some elaboration. Suggested by a number of independent scholars it has received an able presentation by Mr. William Simpson in his delightful volume, *The Buddhist Praying Wheel*.²⁰ The sun in the earliest times must have been an object of wonder and worship. From it came light, heat, health, wealth. It appeared as a circle in the heavens, and by its turning movement the succession of the seasons were ensured. The wheel or circle, one of the oldest symbols, common to Brahmanism and Buddhism, but antedating them, and almost universal in use, would naturally be a symbol of this benevolent object or deity.²¹ It would come naturally to represent the idea of dominion, power. From the presentation of the merely physical aspect it would be natural to attribute to the wheel the additional idea of the right, true way, the beneficial path, and so the law. Whatever was according to the path of the sun was of the good way, and that not so was false, of decay, and death. The wheel

¹⁷*The Secret Doctrine*, by H. P. Blavatsky. The Theosophical Pub. Co., London, 1882, Vol. II, pp. 98, 99, and others.

¹⁸See RECORDS OF THE PAST, July, 1907. *The Evolution of the Greek Fret*, by Eunice Gibbs Allyn.

¹⁹H. Newell Wardle, in *Treasures of Prehistoric Moundville*, Harper's Magazine, Jan., 1906.

²⁰*The Buddhist Praying Wheel*, by William Simpson, London. Macmillan, 1896, a work embodying about all the available data at that time.

²¹Interesting in this connection is the statement by Palgrave, quoted by Prof. S. I. Curtis, *Primitive Semetic Religion To-day*, Revell Co., 1902.

"God is for them [the great mass of the Bedouins, with exceptions among the Towarah of the Siniatic peninsula] a chief residing mainly, it would seem, in the sun, with which, indeed, they, in a measure, identify him." p. 126.

represented also progress, on-going. The dominion could not be held back, and to apply the symbolism to the soul, it was in its passage through the circles of existence to Nirvana. "The Lamas, while regarding the symbol as one of good augury, also consider it to typify the continuous moving or the ceaseless becoming, which is commonly called Life."²²

Turning movements are exceedingly ancient and embody these ideas symbolized by the wheel, becoming acts of worship. Circumambulation is still practised as a marked religious exercise, for example at Benares, at Mecca about the Kaabah, about Lhasa, and some Christian communions and secret orders adopt the same in their rituals. The worshiper or procession, as a rule, moves with the right hand toward the altar or building, for the right movement or sunwise, is almost universal.²³ From the earliest Vedas, scholars giving to the Rig Veda a date varying from 1000 to 4000 B. C., we learn that the movement of the sun had been the type of the right movement. The Prayer Wheel takes its place as a means of praise and petition, its movement, properly, being always sunwise.

The Swastika also is one of the oldest of symbols, and well-nigh universal. Mr. Edward Thomas, one of the first authorities on Indian coins, and who published a paper on the Indian Swastika and its western counterparts, and who is quoted by Mr. Simpson, wrote: "So far as I have been able to trace or connect the various manifestations of this emblem, they one and all resolve themselves into the primitive conception of the solar motion, which was intuitively associated with the rolling wheel-like projection of the sun through the upper or visible arc of the heavens as understood and accepted in the crude astronomy of the ancients."

Prof. Max Müller, writing to the *Athenaeum*, speaks of this explanation as decisive, saying: "The emblem of the sun in motion, a wheel with spokes, was actually replaced by what we now call the Swastika; that the Swastika is, in fact, an abbreviated emblem of the solar wheel with spokes in it, the tire and the movement being indicated by the crampons."

Mr. Haddon, in his *Evolution and Art*, referred to above, says: "The view supported by the greatest number of investigators, who have succeeded by their studies of Hindu, Greek, Celtic, and the ancient German monuments in establishing the fact that the Gammadion has been, among all nations, a symbolic representation of the sun, or of a solar god." In further support of this claim the form of the Swastika is urged, rays in motion, and also that the objects most frequently associated with it are representations of the sun and solar di-

²²*The Buddhism of Tibet*, by L. Augustine Waddell, London. Allen & Co., 1895.

²³In northern latitudes especially the sun is seen to rise in the northeast and to travel southward, then in setting to move to the northward to reappear again in the northeast. "Sunwise," therefore, means turning from the left to the right with the right hand as a center. cf. Simpson.

vinities. In some combinations the symbol alternates with signs of the sun. An antique represents Apollo in a car with a Swastika on his breast. Mr. Goodyear cites a number of examples. A water-bottle, discovered at Moundville by Professor Moore, bears an incised decoration of a winged sun and solar ray emblems, and another bottle a Swastika in a circle. The Empress Wu of China, about 704 A. D., invented an emblem of a Swastika enclosed in a circle, the sign for sun. A Greek geometric vase in the British Museum shows the symbol between two solar geese.

This explanation of the genesis of the Swastika and its early associations does not require the giving up of other symbolisms which may have been attached to it. Advocates of the sacred fire, the "Lucifer" of primitive man, of the four cardinal points, and the four winds, may still read their favorite meaning in the cross.

As regards the two forms of the emblem there is, of course, a diversity of opinion. The one which "kicks to the left," Mr. Simpson would connect with death, and refers to the circlings at funerals, which are against the sun, the way of evil, decay. In Scotland, for a long time, the left movement, known as "Widdershins," was unlucky and used as an evil spell. We have light here, perhaps, on the expressions, doing another "a good turn," or a "bad turn." Still, we find many examples of the left Swastika used like the other. So Mr. Landon, relating his observations in Tibet, says: "It is said that the Swastika which revolves to the right is consecrated to the use of orthodox Buddhists of whatever school, and that the Swastika which kicks in the other direction is used only by the Bennpa, the original devil worshipers, whose faith was ousted by the adoption of Buddhism. This is not borne out by the relative frequency of the position of the two Swastikas in Tibet. The left-handed Swastika (*i. e.*, the one which turns to the dexter), is, if anything, the commoner of the two, and the commonest use of this symbol is in the opposition of the two kinds; thus the two halves of a doorway, or the pattern of a rug, will generally offer an example of the two kinds confronted."²⁴

But Mr. Landon is not left in undisputed possession of the field. Colonel Waddell, an authority on Buddhism, speaks of seeing in a monastery near Lhasa a reversed Swastika. He ascribed this to the ignorance of the Lamas. "I noticed that they had figured the lucky fly-footed cross, the Swastika, in the reverse way, that is, with the feet not going in the diurnal course of the sun, or the hands of a clock, but in the opposite direction, which the merest tyro should know is not only wrong, but is the form of this symbol used by the non-Buddhists, indigenous Black-caps, the Bon, and the use of which is regarded by the Lamas as wicked."²⁵ But the Lamas there evidently did not think so, for when expostulated with by the traveler the head

²⁴*The Opening of Tibet*, p. 188.

²⁵*Lhasa and Its Mysteries: A Record of the Expedition of 1903-1904*. L. Augustine Waddell. E. R. Dutton & Co., 1905, p. 323.

Lama did not understand his complaint. More to the point than the modern use in Tibet is the fact that on objects found by Doctor Schliemann, right and left Swastikas occur together. Professor Müller insists that the Sanscrit name refers properly only to the cross with arms pointing to the right, and that the name of the other is Sauwastika. But without reference to the name, which is only of accidents, we may agree that general use indicates that the direction of the arms is of secondary importance to the symbolism.

It was probably an easy transition for the Swastika cross, beginning with whatever signification, to take on the nature of an amulet or good-luck sign, and finally to be used as the horseshoe is so largely in our day, with purely superstitious idea. In parts of Italy the traveler sees large rudely-formed Roman crosses marked on the doors and sides of the houses of the peasants, showing the degradation of the Christian symbol to a similar use. Bibles have been put against doors to keep out the evil spirit. The Swastika use, carried to far distant lands by migrating peoples, would thus be the more likely to lose its original meaning. But the charms now sold in our jewelry stores may, after all, really carry us back, however ignorant the wearer be of it, to the days of the worship of the sun, to the time of the sacred fire.

Any investigation of this symbol is no small theme. One becomes involved in many a closely related problem, each one calling for patient, thorough, judicial study, and often yielding many another question mark. There are the migration of peoples and persons, the tendency of the human mind to express and communicate ideas by symbols, the history of symbolism in art and decoration in general, early religions, superstition and amulets, all most engaging fields of study. To them might be added, as a present day accompaniment, a psychological study of the writers on these themes, their points of view, positive opinions, and differing conclusions.

Appropriately could many an attempt to tell the story of the Swastika close modestly with a line similar to that written of that unique river of our planet, the Jordan, taken from a most interesting work of recent publication: "We have cleared up many mysteries, but have also widened the circle of our ignorance."²⁶

CHARLES DE WOLFE BROWER.

Indianapolis, Ind.

²⁶*The Jordan Valley and Petra.* Libbey and Hoskins.





HITTITE PROCESSION OF 12 MEN [FIG. 7]

THE HITTITE CAPITAL BOGHAZ-KEUY AND ITS ENVIRONS

IT IS safer not to prophesy until after the event, but the impulse to predict that within a few years the name Boghaz-keuy will sound as familiar as Tel el-Amarna has already become is too strong to be resisted. The site has been known for some years to travelers and archæologists as that of a Hittite capital of vast extent in comparison with other ancient cities. Yasili-kaya, with its marvelous sculptures, is a suburb, and Eyuk, with its sphinx-guarded temple is but 15 miles away. Bits of cuneiform writing have been picked up on the surface by chance visitors, and several persons have longed to make excavations. It remained, however, for Prof. Hugo Winckler, of the University of Berlin, to secure the funds, obtain permission from the Turkish Government, and, with the assistance of Makridi Bey, of the Constantinople Museum, as field director, in the summer of 1906, to unearth 3,000 more or less broken tablets of baked clay, written in the Hittite language and the cuneiform character. This is the first considerable store of the yet undeciphered Hittite literature for archæologists to work upon.

Boghaz-keuy is a beautiful Turkish name, meaning "Gorgeville," and is used because the site lies just where a mountain gorge opens out upon a wind-swept Cappadocian upland. Its altitude is above 3,000 feet, and its position is nearly equidistant from Sinope and

Cesarea Mazaca. Similarly Yasili-kaya signifies "Written Rocks," for the Turks do not distinguish between sculpture and writing, and Eyuk means a "mound," and deserves its name.

The outer wall of Boghaz-keuy enclosed an approximate ellipse a mile and a quarter long and more than half as broad. On the south, where the natural defense was weakest, the highest fortifications were constructed. A rampart of earth was topped with a wall consisting of outer and inner faces of dressed stone filled between with rubble. From the crest of this wall to the bottom of the moat, which the rains



POSTERN GATE IN THE WALL [FIG. 1]

of 30 centuries have not washed full of earth, is not less than 150 ft. Much of the rampart is paved with flat stones, which would both hold the earth and make a successful scaling attack almost impossible. A postern gate (Fig. 1), and a tunnel under the rampart at the level of the ground, on the outer side of the moat, saved traffic in time of peace from a long detour. The tunnel is arched above, and this is probably one of the earliest examples of the use of the arch in architecture. Now the tunnel is choked with stones, presumably filled in at the time of the last sad siege of the city.



FOUNDATION STONES OF THE PALACE [FIG. 2]
CARVINGS IN GALERIES AT YASILI-KAYA [FIG. 5]

Within the outer wall there were 3 strong castles, forming with the Lion Gate a slightly curved bow, and dividing the higher ground of the city from the lower. The "palace" and other important buildings were in the lower part. No lime was used in these structures, but a clever device held each of the huge stones in place. They were cut smooth on each of their faces, save that an upturned lip was left along the outer upper edge of the dressed block. Thus no stone could slip outward, and massive walls still stand perfectly firm. The "Great Castle," on the eastern flank of the city, occupied an almost impregnable position high on the natural rock that rose sheer from a stream. It was extensive enough to furnish space for an ample grain field now, and enormous quantities of building stones follow the contour of

the walls. The great treasury of cuneiform tablets was found near the main door of this castle, and the "palace" stood on the more genial level ground below.

The palace must have been a very extensive series of structures, and the size of the foundation stones used may be appreciated from Fig. 2, where the persons stand at the ends of stones which are broad and deep in proportion to their length. The main approach to the building was by a cyclopean staircase on the west side, and this led direct to the large central room which was presumably the throne room. Around the other 3 sides of this central *salon* were ranged other rooms, but the entire north end, including just 1-3 of the whole structure, was separated from the rest by a narrow alley or hallway, and apparently constituted the *harem*, or quarters for the ladies of the royal household.

About two miles away are the hypæthral rock galleries, called Yasili-kaya. The larger gallery has a double procession of about 80 figures, carved on the natural rock walls, which have been smoothed in places for the purpose, and meeting at the inmost recess of the gallery. The figures nearest the entrance are about half life size. As the processions advance the stature of their members increases, until the two figures at the head (Fig. 3), the chief priest and priestess, or the king and queen, or possibly the god and goddess, are quite above life size. The priest-king, let us say, stands upon the heads of two subjects or captives; their heads are bent forward, and are covered with the Phrygian cap, which rises to a peak, and also falls forward. His retinue consists of male figures. He holds a battle-axe in his right hand, and with his left extends a curious Hittite symbol toward the priestess-queen, who advances a similar symbol in her right hand. She stands upon an animal, apparently a leopard, and wears a flat-topped mural head-dress. Immediately behind her stands a youthful, beardless figure (Fig. 4), interpreted by Professor Ramsay as her consort-son. He stands on another leopard, and behind him come two more women, whose feet rest upon a double-headed eagle. A huge detached figure in the procession following the priestess is a fine sculpture probably depicting a god. His extended right hand holds a complicated symbol, including a winged disc; his left, a curved lituus; the hilt of a dagger appears at his waist, and his feet, cased in shoes with upturned toes, rest upon two rugged mountains.

In the smaller gallery a pair of figures are thought by some to represent again the consort-son and his mother (Fig. 6). One curious piece consists of a human head above, shoulders formed of lions' heads, and lower parts shaped of two lions' heads downward, the whole being supported on a pedestal, or possibly a sword handle, which runs to a point below. On the opposite wall is a striking procession of 12 men (Fig. 7), about 3 ft. in height, adorned with short tunics, high, ribbed caps, and round earrings, each carrying a short sword or reaping hook over the right shoulder. They may represent a sa-



DISCOVERIES AT BOGHAZ-KEUY

A TRENCH [FIG. 11]
 FIGURES IN SMALLER GALERY
 [FIG. 6]

INNER WALLS OF THE DOORWAY
 [FIG. 9]
 FIGURES AT THE HEAD OF THE
 PROCESSION [FIG. 3]

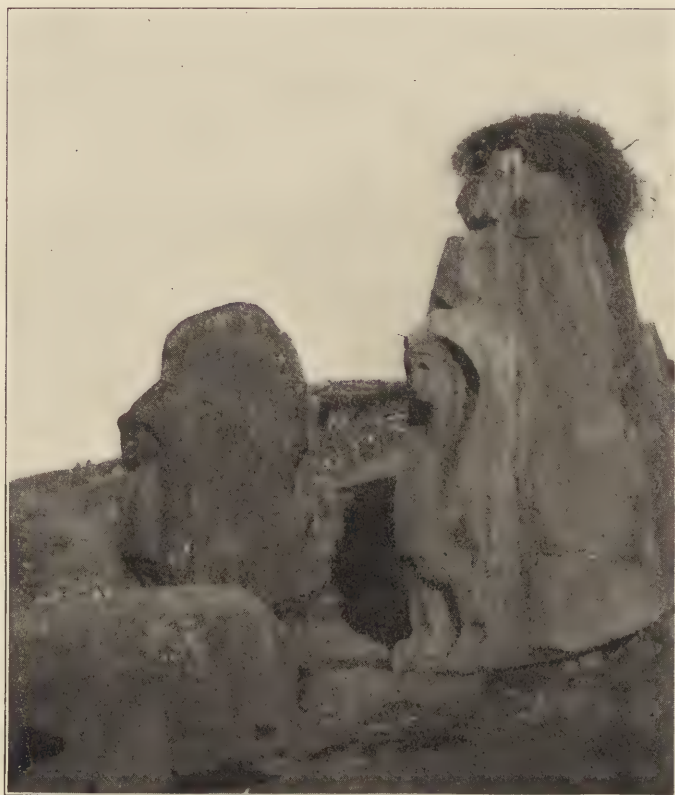
cred march, or a harvest festival, but do not have a military appearance. Indeed all these sculptures suggest worship rather than war.

The ruins at Eyuk are compact, and consist of a small temple, its sphinx-guarded door (Fig. 8), and its double procession of approaching worshippers to the number of about 40. As in the main Yasilikaya gallery a majority of the figures are at the left of one who faces the culminating point. The main room of the sanctuary is only 7 yards by 8 in measurement. This may be compared with the size of the Holy Place in the tabernacle of the Israelites, which was approximately contemporary. Neither could contain a congregation, but only the ministering priests. The solemn sphinxes at the temple door may



YOUTHFUL FIGURE [FIG. 4]

resemble the cherubim used in the Israelite tabernacle, and winged eagles with double heads decorated the inner walls of the doorway (Fig. 9). Amid the sculptured procession moving on basalt rocks toward the sanctuary is an altar (Fig. 10), before which stands a bull on a pedestal, and behind which is a priest with a huge ring in his ear. Close behind the priest a flock of 3 sheep and a goat approach the sacrificial altar, a temple servant leading one by the horn. Compare the description in Ex. xxxii: the Israelite said to Aaron, "Up make us gods;" he required their golden earrings, made a calf "and built an altar before it;" they offered burnt offerings and peace offerings; they



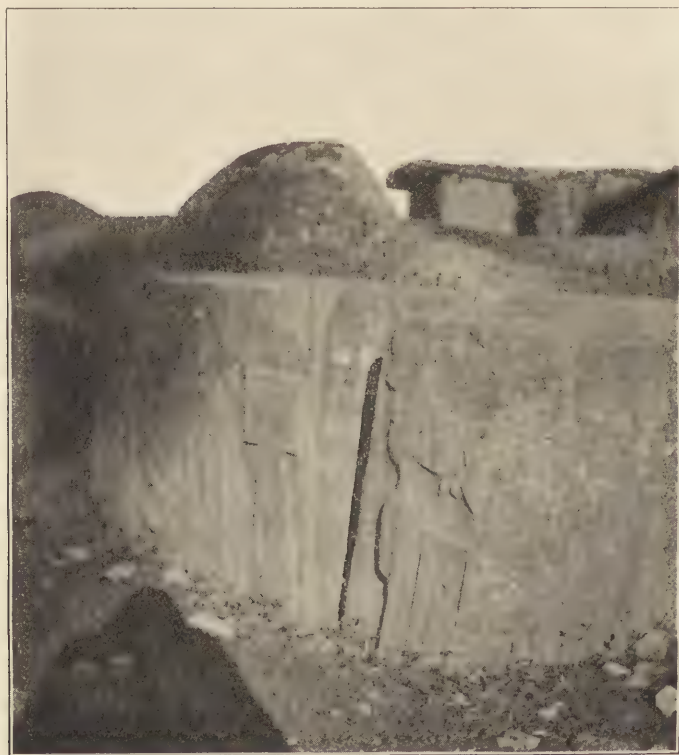
SPHINX-GUARDED DOOR TO THE SMALL TEMPLE AT EYUK [FIG. 8]

ate and drank and gave themselves up to revels and orgies. Israelite worship was in form very like, but in true spirit wholly unlike, the worship of the Hittites and other nations round about. For musical instruments the Eyuk procession depicts a *lituus*, a (silver?) trumpet and a shapely guitar; the animal kingdom is represented by another bull with a chest or ark on his back, one well-executed lion, and two hares held in the two talons of an eagle; a fine lady sits in a chair with a footstool, holding what seems to be a goblet in one hand and a looking glass in the other; a spring close at hand furnishes all the water ever needed for worshippers and temple ritual.

Professor Winckler discovered at Boghaz-keuy two heavily fortified gates, one of which, flanked by a fine pair of stone lions, is said to resemble the famous Lion Gate at Mycenæ. The theory is growing in favor that Asia Minor, in the second and third millenniums before the Christian era, was a bridge over which some of the civilization and culture of Mesopotamia was passed on to the shores of the Ægean.

The German professor's most valuable "find," of course, was the cuneiform tablets. It is fascinating to stand beside a trench (Fig. 11), and watch the workmen as they carefully turn over the earth and turn out the writings of men who were forgotten 3,000 years ago. A

score or more of the tablets are written in the Babylonian *language*, and so are easily read by Doctor Winckler. The most valuable one is a tablet some 18 in. long by 10 wide and 2 thick, containing a treaty between Rameses II, the Pharaoh of the oppression in Egypt, and Khita-sar, the King of the Hittites in central Asia Minor. This treaty tablet establishes beyond question that Boghaz-keuy and its environs were in a flourishing condition before the age of Moses. As the sculptures are of fairly uniform character and quality, Professor Winckler supposes that the period was not a very long one, and ashes here and there indicate that the place was destroyed and a veil drawn down

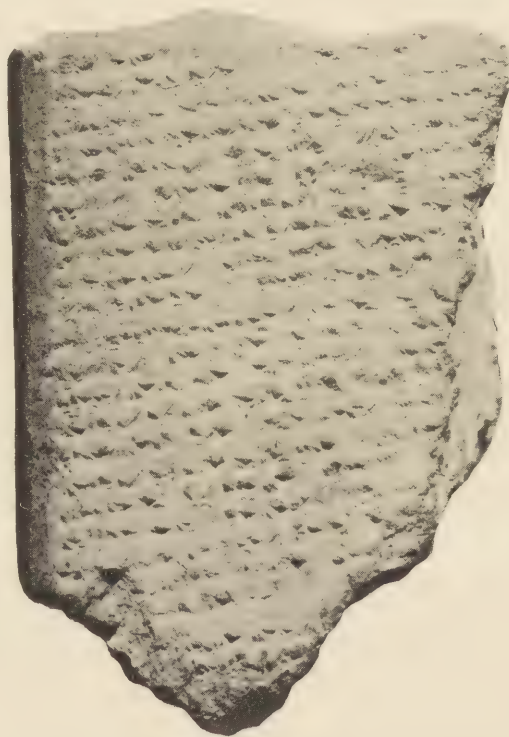


ALTAR AT EYUK [FIG. 10]

over its history by some overwhelming catastrophe. One wonders whether the voice of a Hittite Homer will soon relate to us the annals of a nation, speaking from amidst these dusty bricks! Excavations closed for 1906 not because the store of buried treasure—amid which let not the quantity of decorated pottery fail of mention—was exhausted, but because the season had come to an end. Professor Winckler then expected to return and resume operations in the season of 1907.

Professor Sayce has copied the Boghaz-keuy tablet photographed for this article (Fig. 12), and tells me that it contains a list, appar-

ently, of the products of the mountain Kibis on one side, and on the other certain offerings, the heart, ribs, etc., made to the god Khibe or Khiba. He adds that Abd-Khiba, the Servant of Khiba, is named in the Tel el-Amarna tablets as king of Jerusalem. The city of David, therefore, seems earlier to have had kings of the same race with the soldier Uriah. Professors Sayce and Pinches have just edited for the Royal Asiatic Society a 94-line tablet from Yuzgat, which must originally have come from Boghaz-keuy. These gentlemen had already deciphered certain Cappadocian tablets from Kara Eyuk, near Cesarea Mazaca, written in the Babylonian language, and dated from the age



BOGHAZ-KEUY TABET OF PRODUCTS OF THE MOUNTAIN OF KIBIS
[FIG. 12]

of Abraham, thus proving Asia Minor already to have come within the sphere of Babylonian influence at that early time. It now appears that the Hittites adopted not only the *script* of Babylonia, but numbers of *ideographs*, and "it is these ideographs which have furnished the key" to the Yuzgat tablet, and enabled its editors to include in their monograph a vocabulary of several hundred words. Professor Winckler has not yet begun to publish his tablets. Evidently the decipherment of the Hittite language is just at hand. History is yielding up its dead, and we may watch the process.

GEORGE E. WHITE.

Samsoun, Turkey in Asia.

NEW LIGHT ON BABYLONIAN CHRONOLOGY

RECENT discoveries made in translating Assyrian and Babylonian tablets in the British Museum have cleared up some of the apparent discrepancies between the Old Testament and the Babylonian chronologies, and so have proved to be very important. Several years ago Dr. Leonard W. King, F. S. A., found in the British Museum some new chronicles of the early Babylonian kings, which he has translated. The results of his work have recently been published by Doctor King,* the most important being the discovery that the II dynasty of Babylon was contemporaneous with portions of the I and III dynasties, thus greatly reducing the dates of the I dynasty, and reconciling the Old Testament chronology with the Babylonian and confirming the general belief that Amraphel King of Shinar (Gen. iv), was Hammurabi, King of Babylon, and a contemporary of Abraham.

The statement of these discrepancies in our former chronologies and their complete reconciliation by the recent work of Doctor King is so well expressed by Prof. Robert W. Rogers, of Drew Theological Seminary, in a recent article in the *Christian Advocate*, that we quote the following from him:

According to my chronological scheme Hammurabi reigned 2342-2288 B. C., and the dates proposed by other scholars do not vary greatly from these. (Sayce gives 2376-2333; Winckler, 2313-2258.) If, now, Hammurabi is Amraphel, and Amraphel is a contemporary of Abraham, we come at once into an overwhelming chronological difficulty. Let us see how impossible it is to reconcile these things. According to Exod. 12, 40, Israel was 430 years in Egypt; and according to Gen. 47, 9, Jacob was 130 years old when he went into Egypt; and according to Gen. 25, 26, Isaac was 60 years old at Jacob's birth; and according to Gen. 21, 5, Abraham was 100 years old at the birth of Isaac. These numbers taken together give 720 years as the period from the birth of Abraham to the exodus. But according to Gen. 12, 4, Abraham was 75 years old when he left Haran on his call of God. Therefore, according to Genesis and Exodus, in the Masoretic Text as it has come down to us, the length of time from Abraham's call to the exodus is 645 years. Now recent study has tended very strongly toward placing the exodus out of Egypt in the reign of Merneptah, the successor of Rameses II. The date of his accession is placed by Meyer at 1234 B. C., but most scholars would place him a little earlier. If we place the exodus at 1270 B. C., we shall not be far from the best of recent estimates, but 645 years added to that only brings us to 1915 B. C. But my date of Hammurabi is 2342-2288 B. C., and so we have a discrepancy of nearly four hundred years! But if we accept Archbishop Ussher's date of the exodus, which is 1491 B. C., and add 645 years to that, we still only come to 2136 B. C., and are still confronted with a discrepancy of two hundred years! Now,

**Chronicles concerning Early Babylonian Kings*, including records of the early history of the Kassites and the Country of the Sea. By L. W. King, M.A., F.S.A. Two volumes. London, Luzac & Co., 1907.

what have I done in this case? I have simply suspended judgment. I have been absolutely convinced that Amraphel and Hammurabi are the same person, but I have said to everybody who thought it worth while to ask me, "I can not explain away the figures. The Old Testament figures can not be reconciled with the figures of the Babylonian Chronicles and King Lists. I refuse to juggle either, and, therefore, must simply await further light."

And now it is extremely pleasant to be able to say that the light has arrived. Doctor King's new book gives us admirably clear copies in cuneiform script of his newly found Babylonian Chronicles, and, with these, a transliteration into Roman script and a translation into English, with most interesting discussions of the effect of the new data on our systems of chronology. Until these discoveries of his were made, all we, who were busying our wits with Assyrian history, were compelled to accept the statements of the Babylonian King Lists that there was a I dynasty of Babylon with eleven kings, of whom Hammurabi, was sixth; that these kings ruled about 307 years, and that following them came the II dynasty with eleven kings, who ruled 368 years, and then came the III or Kassite dynasty, whose kings had such relations with kings elsewhere that we were able to establish synchronisms, and so get definite dates from which to calculate backward into the I dynasty. It was by adding up the figures of the King Lists that I obtained the date 2342-2288 B. C. for Hammurabi, and other scholars obtained similar dates. But now come Doctor King's new discoveries, and prove beyond a doubt that the II dynasty ruled in the Sea Land of Southern Babylonia, and not in Babylon at all, and, further, that certain of its kings were contemporary with certain kings of the I dynasty, and certain others overlap the early kings of the III dynasty. We are, therefore, required to shift this II dynasty, with its 368 years, out of our chronological schemes altogether, and our dates of the I dynasty are reduced by 368 years. If, now, *provisionally and subject to later and more exact calculation of other factors*, I take 368 from my earlier date of Hammurabi, I get the new dates 1974-1920 B. C. for Hammurabi. If, now, the date of the exodus is 1270, and we add 645 years to that in order to reach Abraham's call, we get 1915 B. C., and, lo, there is almost a perfect correspondence, and the big discrepancy has disappeared.

Doctor King has seen very clearly where all this new work of his was leading. He used to doubt whether Hammurabi was really Amraphel. He now writes in this positive manner: "Our new information enables us to accept unconditionally the identification of Amraphel with Hammurabi, and at the same time it shows that the chronological system of the priestly writer, however artificial, was calculated from data far more accurate than has hitherto been supposed." (Vol. I, p. 22.)

And again in another place he says: "We may conclude that the chronology of the Pentateuch, with regard to the length of time separating Abraham from Moses, exhibits far greater accuracy than we have hitherto had reason to believe." (Vol. I, p. 25.)

Personally I have never staked the historical value of the Old Testament upon its chronology. I consider its history quite apart from its chronology, which is obviously in some cases expressed in round numbers, and, perhaps for mnemonic purposes, as it always seems to me to be in the book of Judges at least. But I am glad to find that this chronology stands the test, and that this new discovery helps us out of our difficulty. The world of biblical scholarship, in which it is our delightful privilege to live, is interesting, and daily growing more interesting, and Assyriology is surely a very useful source of new light upon our questions. If critical scholarship has given us some new and difficult problems, it has also helped solve some old ones. Let us be duly thankful for both services.

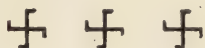




Photo by Moloney Cashel

ROCK OF CASHEL AS VIEWED FROM THE SOUTHEAST

THE ROCK OF CASHEL

IN THE "Isle of Saints," as Ireland was aptly termed in olden times, there are numerous ecclesiastical remains of enthralling interest, from the examination of which the traveler may derive pleasure and profit, and where he may spend a few hours, the memory of which will remain with him all his life. Mellifont, Limerick, Tintern, Dublin, Athassel, Glendaloch, Kilkenny—the list is inexhaustible. Their interest is enhanced when he calls to mind the fact that some of these places date from the days, truly called the "Dark Ages," when the light of learning and religion was almost extinguished elsewhere, so that students were compelled to come in their hundreds from different parts of the continent of Europe to study in the schools of Ireland. But, perhaps, of all these places, the Rock of Cashel is the most attractive, as well on account of its architectural wonders as its historical associations. Here, within a very small space of ground, may be found a unique collection of buildings of different dates, some half a millenium older than others. The antiquary, the cleric, the artist, the architect, and the tourist will each find something

that will appeal to them. Thanks to the board of public works it is now a national monument, and as such is carefully preserved, and kept in good repair. As a small, single-line branch has been run off the main railway, it can be reached with ease from either Dublin or Cork. The railway station at Cashel seems to have been constructed with a view to arousing the eagerness of the visitor, and whetting his appetite for a "feast of fat things" of antiquity. As he steps out of the carriage he sees in the valley below on his right the gray ruins of



SOUTH DOOR OF CORMAC'S CHAPEL

Hore Abbey, while at the end of the platform the historic rock, crowned by its collection of ruins, rises sheer out of the plain. To be seen at its best it should be visited on a bright summer's day. The dazzling whiteness of the limestone, the emerald green of the country round (some of the richest in Ireland), and the deep blue of the sky, form a picture to which neither pen nor brush could do adequate justice.

Here may be related the legend which is told by the old people as to the origin of the rock. One day the Devil was climbing Barnane Hill, or the "Devil's Bit," as it is popularly called, some 16 miles away. In a sudden fit of diabolical rage he bit an enormous piece out of the hill, and flew away with it. In his flight through the air he dropped some small fragments out of his mouth, which lie in a field close to where this paper was written. St. Patrick, however, was watching him, and by his superior power forced him to drop his mouthful, and in this way the Rock of Cashel came to be where it now is. Who would be so sceptical as to doubt the truth of this story, since both the piece bitten out, and the place from which it was taken, can be seen for miles around! The rock, mapped out by nature as an impregnable stronghold, and furnished with a constant supply of water from a well on the very summit, must have been crowned in prehistoric ages by a stone fort, as the Irish word "caiseal" ("circular stone fort") implies. About the beginning of the V century Corc, King of Munster, took possession of Cashel, and he probably erected one there, as it is recorded that he changed the name of the place from "Shee-arum" ("fairy ridge") to "Cashel." This would have been replaced by an early church, whose site has long since been occupied by later ecclesiastical buildings. It is curious, however, that although Cashel became an archbishopric, having jurisdiction over Munster, yet the sister see of Emly, as a bishopric, was founded 4 centuries earlier.

It will be easily understood that the path leading up from the town to the entrance gate is very precipitous, and this is principally the reason why the cathedral on the rock is now only a ruin. Arthur Price, who was archbishop from 1744 to 1752, unlike Solomon, did not glory in "the ascent by which he went up to the house of the Lord"—on the other hand he felt it too fatiguing to his own legs and those of his horses. Accordingly, in 1749, by authority of an act of Parliament, he unroofed and dismantled the old building, and commenced the erection of the present cathedral in the town. But for this unjustifiable act of vandalism the historic pile would still be filled with the incense of prayer and praise.

The first building of interest to be noted is the College of the Vicars Choral, who were attached to the cathedral, and had certain lands set aside for their maintenance. It is a late structure, dating from the XV century. When the visitor passes through the entrance gate his eye at once falls on what is perhaps the most interesting relic in the whole place. He will see a large stone, foursquare, on each face of which may be discerned dim traces of spirals and concentric circles, typical specimens of early Celtic ornamentation. It is said that this was the seat on which the ancient kings of Munster were crowned. Placed on this as on a pedestal, and emblematic of the triumph of Christianity over Paganism, is a stone cross. One arm is broken off, while the remaining one is supported by an upright of stone, a feature which renders this unique among the Celtic crosses of

Ireland. On one side is St. Patrick in the act of benediction, while on the other is carved Our Lord, fully draped. This is in accordance with the ideas of the Eastern Church, as the West always represent Him with merely a loin-cloth. A few yards from this is the south door, through which entrance is made into the cathedral. This venerable weather-beaten pile, dating from the XIII century, is cruciform in plan, with two small chapels off each of the transepts. At their in-



INTERIOR OF THE OLD CATHEDRAL, SHOWING CHOIR AND CHANCEL,
WITH REMAINS OF THE EAST WINDOW

tersection with the nave rises the belfry tower, the roof of which is groined. A curious fact will be noticed here, namely, that the nave is much shorter than the chancel—the reason is that the Archbishop's Palace had to be fitted in at the west end, and the space available for building purposes was very limited. In 1649, Murrough O'Brien, Lord of Inchiquin, stormed the rock, and massacred a large number of peo-

ple within the sacred precincts. Not until Trinity Sunday, 1727, were services held here again, and then only for a few brief years, till Price's act of destruction.

The tombs and inscriptions in the cathedral are not very numerous in comparison with other places in Ireland. In the nave is an arched tomb with curious remains of old stucco work. In the north transept is a magnificent altar-tomb, with carvings of grotesque animals, belonging to the O'Kearney family, who were the hereditary guardians of St. Patrick's crozier. By it is a slab with the twelve apostles cut on it, each with their own peculiar emblem. St. Peter has an enormous key, St. Philip has the "five loaves" of the miracle, while St. James holds something suspiciously resembling a hurley, as used to this day in the national game. There are many beautiful specimens of the stone-cutter's art hard by, two of which deserve special mention. One is the head of a devil, into whose features the unknown artist has succeeded in infusing a mingled expression of cynicism and contempt. The other is a nude, armless, female figure, in high relief, with the legs twined round each other. It is supposed to have come down from pre-Christian times, and closely resembles those carvings, called "Sheela-na-gigs," which are frequently found built into old castles, and are said to have been placed there as charms.

The chancel, which next comes under consideration, was burnt by the Earl of Kildare, in the reign of Henry VIII. When brought up for trial he justified his action by declaring that he did so because he thought the archbishop was in it. The feeling of the latter, who was present in the court at the time, may better be imagined than described. In the north wall is the tomb of Archbishop Malcolm Hamilton, a Scotchman, who died in 1629. The inscription is all defaced, by, it is said, Baron Purcell, of Loughmoe, and his soldiers.

Opposite this a recumbent effigy marks the spot where lie the mortal remains of the notorious prelate, Archbishop Miler Magrath, "that wicked Milerus," as an old writer terms him. He had been originally a Franciscan friar, but turned Protestant, and became Archbishop of Cashel, in 1570. Of him it might truly be said that he was one of those grievous wolves who entered in and spared not the flock. He held several bishoprics together with his archbishopric, in addition to numerous rectories, vicarages, and dignities in different parts of the country; he alienated church property, pocketed church money, and filled all available livings with his own friends and relations. On one occasion he appointed his son, John, a boy 10 years of age, vicar of a parish, in order that the clerical income arising therefrom might pay his school fees, while the Protestant [*sic*] curate was a Roman Catholic priest, about 85 years old. He died in 1622, in what can hardly be termed, in his case, the "good" old age of a hundred.

At the angle formed by the south transept and the nave rises the Pentagon Tower, up which runs a winding stairs of 122 steps, by

means of which access can be had to various parts of the building. From the summit of this tower a view of the surrounding country may be had, which, if seen to advantage on a clear day, will indelibly impress itself on the mind. Away to the west, toward the historic town of Tipperary, renowned in ancient and modern times, stretches the broad level plain, dotted here and there with buildings of different ages, while on the extreme left the Galtee Mountains stand out clear and sharp against the summer sky. In the hollow beneath lies Hore Abbey. Anent this latter place the following curious tale is told. It was originally founded for monks of the Benedictine Order, but David MacCarwell, who was archbishop in 1253, having dreamt one night (as he said) that they tried to assassinate him, violently dispossessed them, and gave it to the Cistercians. On the south side, so close to the rock that it seems as if a stone could be thrown from the battlements into the garden, stands the later Palace of the Archbishops, now used as the dean's residence. It is a noble, picturesque mansion, with lofty chimney-stacks, and red-brick facing, whose bright tints are mellowed and softened by the hand of time. To the east of it, flowing like a sea to the very base of the rock, is the town of Cashel, anciently a walled city, with its narrow winding streets betokening a great antiquity, while here and there the hoary remains of an abbey or a castle rise above the modern roofs.

At the west end of the cathedral, and built on to it, is the old Archbishop's Palace, in reality a strong castle. Even the most superficial observer will notice that the original builders planned the place with a view to war as well as worship, so solidly is the whole constructed. This is not in as good preservation as the other buildings owing to the fact that a large piece fell down on the 23d of February, 1848, the day on which Louis Philippe fled from France. In order to economize room all the staircases are in the thickness of the wall, and the visitor will almost lose his way as he wanders along narrow, gloomy passages, ascending and descending in his course precipitous flights of steps which are as steep as a ladder. In the rooms of the palace there are no architectural beauties to be noted—it was built for safety, not for appearance.

Abutting the north transept is the conical-roofed round tower, which is one of the most perfect specimens of these curious structures to be found in Ireland. As has been remarked, building room was limited, the more so as this tower and Cormac's Chapel held the ground first, and so threw more difficulties in the way of the architect of the later cathedral. But he, whoever he was, full of the unrivaled skill of the great master-builders of yore, used every available inch to the best advantage, and managed to fit in carefully between the two an elegantly proportioned church. Various and wild were the theories put forward by the older school of Irish antiquarians as to the use and purpose of these round towers. They were fire temples—they were emblems of phallic worship—they were pillars on top of

which saints lived after the manner of Simon the Stylite—they were even lighthouses. It is now generally held that they had inside several wooden lofts or floors, connected by ladders, and served various purposes in time of peace, such as watch-towers, belfrys, and strong-rooms for the bestowal of treasure of church property. When war arose the ecclesiastics and people could retire into them, as the door is generally about 9 ft. off the ground, and as the wall is enormously thick there, it formed an impregnable fortress, on which fire could have no effect, and which no foe could take by assault.

Last, but by no means least, there is King Cormac's Chapel, nestling in the angle formed by the south transept and chancel. It is the most perfect specimen extant of the Hiberno-Romanesque style of architecture, and would need a separate paper to adequately describe it. Outside, its high-pitched stone roof, its arcaded walls and deeply recessed north and south doors, with characteristic moulding and beadings—inside the different carvings on the pilasters, the dim traces of old colored frescoes, the chancel arch, and the groups of grotesque heads—all betoken this the most wonderful church of its kind in the country. At the west end of the building stands an enormous stone sarcophagus, or baptismal font, known generally as "King Cormac's Coffin," and exhibiting on the side exposed to view a beautiful specimen of Celtic interlaced work. Outside the north door is an arched recess, where was discovered a bronze crozier, now preserved in Dublin. Over the nave is a lofty and spacious apartment ceiled with calc tufa, a substance found at the bottom of stagnant lakes. There is a fireplace here without a chimney, while at the side of it there are square holes which run along the walls on the level of the floor and seem to be an anticipation of the most modern hot-air arrangements. Two curious points will be noticed almost at once: First, that although placed side by side with the later Cathedral, the axis of the one is not parallel to that of the other. This is explained by the fact that churches were always placed facing the exact spot where the sun rose on the morning of the feast-day of the saint to whom they were dedicated, but, as the sun does not rise in the same point all the year round, the line of orientation of the two is different. Secondly, the chancel arch is not in the exact center of the building, but inclines considerably toward the south wall. This is said to be borrowed from the East, and is supposed to represent Our Lord's drooping head, as He hung on the cross. According to some authorities this chapel was built by Cormac MacCullenan, the King-Archbishop, author of the "Psalter of Cashel," and "Cormac's Glossary," who, a veritable member of the "Church Militant," fell at the fatal battle of Ballaghmoon in 907; according to others the founder was King Cormac MacCarthy, in 1134. Possibly the nearest approach to the truth is that the former commenced, while the latter completed or renovated it.



THE OLD CROSS—THE FIGURE OF ST. PATRICK

These unique relics of antiquity have been all too briefly dismissed in this paper. But enough has been said, it is hoped, to enable the reader to gain some knowledge of them, and to encourage him to visit them if ever opportunity arises. The rock has been recently compared to the Acropolis of Athens, and certainly there are striking parallels between the two places. Both were strongholds of war and religion, covered with buildings of different styles and dates. The Parthenon and Erechtheum of the one correspond to the cathedral and little chapel of the other. But there is also a vital difference. If the Irish Acropolis is left in dim obscurity by the historical splendor of the Parthenon, on the other hand the gods of the Athenian hill have faded out before the moral greatness of the faith preached upon the Rock of Cashel.

ST. JOHN SEYMOUR.

Dover, Thurles, Tipperary Co., Ireland.

INTERDEPENDENT EVOLUTION OF OASES AND CIVILIZATIONS

IN THE presidential address of Mr. Raphael Pumpelly, a year ago before the Geological Society of America, certain interesting conclusions were reached concerning the early development of civilization in Central Asia. His study of the topographical and climatic conditions of Turkestan lead him, in the main, to the same conclusions regarding the loess in Central Asia as those entertained by Baron Richthofen, namely, that wind has been the principal means of its distribution. The only places in this region where life could be conceived were in the deltas of rivers where they come down from the mountains and disappear in the desert, and it is in these favored spots that he finds earliest evidences of civilization. At Anau, near Askabad, 300 miles east of the Caspian Sea, he made extensive excavations, which are described in his address. In the center of the delta stand "two hills, a half a mile apart, and the ruined city of Anau one mile from both." These kurgans are composed of layers, the remains of human occupation, presumably thousands of years old. They denote different degrees of culture, from most primitive up to a much higher degree, and followed again by a lower. The excavations proved that the northern hill, "which is 60 ft. high from its base below the plain, is the older, and represents 6 different populations" from the present time down through the historic, the iron, and copper stages into the Stone age.

The oldest of these are represented by a fairly good pottery ornamented by geometrical designs. They evidently understood the art of spinning, and used the bottomless bake-oven that is still in use in some districts. It is most interesting to observe by what common steps primitive peoples express their ideas, no matter how entirely independent of each other they may have been. From these people, who in all probability antedate the earliest known Egyptian dynasties, through almost all peoples who have been studied down to the Philippines of to-day, we find evidences of this natural skill in the use of conventional design, proving, we think, very conclusively that it is a natural expression, not an inherited one. One still sees in some parts of the East to-day the clay oven heated by a fire made within it on the ground. These people were hunters, and they must have used spear-heads or arrows, but they had no axes nor arrow-points of stone.

Doctor Duerst, of Zurich, examined large quantities of bones found in the lowest 10 ft., and found that they were acquainted with only wild animals, and that from those they had domesticated the sheep and ox, and of the latter they had succeeded in establishing three breeds. He was able "to trace the progressive changes in texture of bone substance and in the character of horns during many centuries of progressive domestication." The horse appears to have been used,

and that presents the question of how he reached that people from America, where it has been thought he originated. They also imported a domesticated pig and goat from Persia. Doctor Duerst identifies one of the breeds of pigs with the "turbary pigs" of prehistoric Europe. This is, therefore, the first discovery of the origin of domestication and of the region from which the world derived the greater number of its useful animals.

These people were followed by another with a different kind of hand-made pottery, and they had in use the camel and used copper to a limited extent. This was the last civilization to occupy the northern kurgan. After them the south kurgan was started, and the remains accumulated to a height of 60 ft. They had advanced to the use of the potter's wheel, the full knowledge of the use of copper, and some knowledge of lead, but they had no knowledge of bronze. "Out of 23 objects analyzed by Professor Gooch, a ring and a small implement, contained under 6 per cent. of tin; a dagger, 1.58 per cent; another small object, 1.65 per cent." With the exception of these 4 no others contained any tin.

All of these three civilizations mentioned had a very singular burial custom. That was the burial of children in a contracted position under the floor of the houses.

This people was followed by one of much lower culture. Their pottery was ruder, and they themselves were supplanted by a people who used iron. Not in the kurgan, but near at hand, the city of Anau was founded soon after the beginning of our era.

Evidently this district was once subject to much more moisture than at present, else we should not find evidence of such extensive population. Irrigation is doubtless essential to the maintenance of any extensive life at the present time. In the shafts sunk at the present in the city of Anau glazed pottery was found down to 5 ft. above the lowest culture. In the ruined city of Ghiaur Kala, in Old Merv, "fragments of glazed pottery were found down to a depth of 20½ ft., where they were associated with Sassanide coins of the III century A. D." It seems likely that glazed pottery was introduced into Persia from Mesopotamia.

Mr. Pumpelly has made the following calculation, taking everything into consideration:

"Founding of Anau.....about 370 A. D.
 Beginning of Iron culture.....in IV century B. C.
 Founding of south kurgan and introduction of the
 potter's wheelabout 3750 B. C.
 Base of upper (æolithic) culture of north kurgan,
about 6000 B. C.
 First domestication of animals, beginning with the long-
 horned ox out of *Bos namadicas*..about 8000 B. C.
 Founding of north kurgan.....about 8250 B. C."

PALESTINE EXPLORATION FUND

NOW that the work at Gezer is taken up again, Mr. Macalister's reports are easily first in interest. He at once found what are believed by him and others to be Philistine burials, and he thus opened up the quest for the remains of a people much mentioned in the Bible, but little known outside of it. In the objects which he figures are a silver ladle, a silver bowl, a bronze mirror, two gold bracelets, several ornamental beads, and a silver signet-ring. But his most interesting object is a bar of polished jasper an inch and a half long, with 3 belts of gold upon it, having a loop of gold to each belt. He believes those objects to have been buried with a Philistine princess, for reasons given. A small stone altar is also figured, showing the top squared and hollowed, with corners elevated like a short horn, "the horns of the altar."

It is now only a question of money whether or not this *tell* is completely excavated in the permitted two years. We have the place, the permit, and, most important of all, the skilful excavator. Shall he be enabled to employ a sufficient force of work people? The Ropes sisters, of Salem, Mass., have left by will to the Fund \$2,000 apiece, and it is hoped that at least some of this amount can be received in season to help, but now is the time to work.

An Austrian company has begun to excavate at Jericho, and it is rumored that an excavation of Samaria will be made by Americans under Professor Reissner.

It is pleasant to chronicle that Dr. Selah Merrill, on leaving Jerusalem for his new consular post in South America, received a testimonial of respect in the form of an address signed by about 100 Palestinian clergymen, teachers, and others, who expressed their appreciation of his services to them and others. His service to Biblical archaeology is also very great and very long.

It is still unsafe to go about alone in Palestine, as an Englishman walking by himself from the Sea of Galilee to Safed found to his cost, for he was waylaid by two men, was beaten and robbed, and was made ill for some time after reaching a place of safety. Under energetic action by the British consul at Safed, the village from which the men came was ascertained, and soldiers were quartered there until the stolen property was given up.

At the recent annual meeting of the Fund the Rev. Prof. Francis Brown, of Union Theological Seminary, New York, was added to the General Committee, which now has 10 American members.

The question of the location of Mount Sinai was lately raised by the fact that the International Sunday-school lessons covered the Pentateuch during the spring and summer. The unsettled feeling

in regard to its location appeared in the Lesson Quarterlies. One of them spoke of Jebel Musa and Jebel Serbal as having equal claims, and added that Doctor Sayce and some others "are disposed to find the true Sinai outside the Sinaitic peninsula, in the land of Midian, but the majority of scholars adhere to the traditional site, Jebel Serbal."

Here is a balancing of opinion, leaving thousands of teachers and scholars in doubt. We think of the teachers pointing to Serbal first, and then going on to Musa, and then indicating in a general way the land of Midian, and saying: "Perhaps, after all, it was there that the law was given and the Israelites never saw the Sinaitic Mountains." Under these circumstances no distinct scene can be brought before the minds of the scholars, and no picture of the place can be left on their memories. This is most unfortunate for the cause of Bible study. How can a historical book like Exodus have its influence and make its proper impression if no idea can be formed of its fundamental facts?

The remedy for this unhappy condition is already existing. The exploration by Prof. E. C. Palmer, continuing for several months, revealed the true Sinai, because it found that Jebel Musa is the only mountain entirely fulfilling the requirements of the narrative. It not only affords in the combined valleys before Ras Sufsafeh the only place for the congregation of Israel to stand before the mount, but the approach to it alone affords the scene for the battle of Rephidim. Palmer's *Desert of the Exodus*, written in the scientific spirit, is the only commentary needed upon Exodus as regards its geographical aspects.

Serbal is a noble mountain, but does not meet the conditions, as Professor Petrie may see when he makes an equally close study of Musa. As for the vague negative suggestions of Midianite Mountains, unexplored and unnamed, no good certainly can come of such wild and unscientific talk. Teaching, to be assured, must rest on scientific exploration and not on mere questionings.

THEODORE F. WRIGHT,

Honorary U. S. Secretary.

42 Quincy Street, Cambridge, Mass.



PROTO-CORINTHIAN VASE FROM ROMAN FORUM.—
In one of the primitive graves laid bare by Signor Boni, in the Roman Forum, a small Greek vase of the Proto-Corinthian period was discovered. The value of this find can hardly be over estimated as it determines the date of this early strata in the very center of Rome. The date of the Proto-Corinthian ware is from 750 to 650 B. C., although some of them belong to a slightly later period.

EGYPTIAN RESEARCH ACCOUNT*

PROPOSED EXCAVATIONS AT MEMPHIS

ONE of the greatest capitals in the ancient world has been left buried in its dust, although the ground is visited by thousands of tourists every year. Memphis, whose history extends over the whole course of Egyptian history, has never yet been excavated. It contained the finest school of Egyptian art, and in antiquity and wealth it was unrivalled. But most of it has gradually passed under the plough, and to rescue what yet remains is most needful before it further disappears. This will necessarily be a great undertaking, like that of France in the clearing of Delphi or of Germany at Olympia. It is upon a public association of subscribers that all such work must depend among us; and the Egyptian Research Account has now undertaken this work, trusting that the public will support it worthily.

The sites of the temples of Memphis lie clearly visible between the mounds of the ruins of the city. They cover more than 100 acres, an extent greater than all the area of Karnak. The chief temple was that of Ptah, a vast building which had been added to by the piety of kings throughout the history. First founded by Menes, and doubtless rebuilt magnificently by the pyramid kings, the temple was enlarged by a great pylon on the north, erected under Amenemhat III. Then Ramessu II built here, on an enormous scale, and added colossi in front of the temple, and Ramessu III built a portico facing to the west. Psammitichos built a southern portico, and also the court for the sacred Apis, which, as Herodotus says, was surrounded by a colonnade and full of sculptured figures, while, instead of pillars, statues 12 cubits high were placed under the portico. Ahmes added an immense colossus 75 ft. high before the temple.

A temple of Isis adjoined that of Ptah, a spacious and magnificent building worthy of the capital. And perhaps the most interesting point of the whole site will be the "very beautiful and richly adorned" temenos, south of the temple of Ptah, in which stood the temple of the foreign Aphrodite, surrounded by the Tyrian Phœnicians. This foreign quarter must have been the emporium of Egyptian trade during the prehistoric ages of Greece, and here we may hope to find the remains of the early civilization of the Mediterranean. Thus the site

*The whole of the results of the Egypt Research Account are published in the Double Volume each year (given to all subscribers of ten dollars and upward), and a smaller edition gives most of the material of general interest for subscribers of five dollars. Address HON. SECRETARY, EGYPTIAN RESEARCH ACCOUNT, University College, Gower Street, London, W. C., England; or Rev. Dr. WINSLOW, 525 Beacon Street, Boston, U. S. A.

promises to be of the first importance, not only for the beginning of the Egyptian kingdom under Menes, its founder, but also for the later connections with the rest of the world.

The temples were standing, like the ruins of Thebes, down to 700 years ago, but were finally removed for building material to Cairo. The foundations and sculptures now lie beneath cultivated fields, owned by the villagers of Mitrahineh. The great colossus and a few other statues have been found here, and it is encouraging to see that all of them have their faces unbroken. The clearing of this site, with gradual exchanges of land as required, will occupy many years, and it is estimated that an expenditure of about \$15,000 annually for about 15 years will be required to excavate the temple sites, apart from the city. As half of the discoveries will be granted by the Egyptian government, this clearance is certain to yield a considerable return to those who undertake the work.

The work of the past season* has been more successful than usual in the discovery of objects, and has added to our archæological knowledge. The first, second, and third dynasties have been tracked at Gizeh, and the civilization soon after the founding of Memphis has been proved to have been exactly equivalent to that of the south at Abydos. Many vases of stone, and objects in ivory and flint, have been obtained of this remote time, centuries before the pyramid builders. A large funeral chapel of the XXVI dynasty was also found, containing four chambers; it was built for a commissary named Thary, and it has been left in place and earthed over again by the department. A large amount of anthropological material of the later times has been brought to England for study.

At Rifeh, near Asyut, a very fine tomb equipment of the XII dynasty was found, of the best work and in perfect condition; the two coffins covered with painting, the canopic box, two boats, and five statutes are of the first quality. A long series of pottery soul-houses [See RECORDS OF THE PAST for July, 1907] have been recovered which explain this curious development of religious thought, and explain the appearance of the actual dwellings of the peasantry in the Middle Kingdom, with the details of construction and of furniture. This is the first time that this interesting subject can be regularly and completely studied. Much else was discovered of this age and of later times; and early Coptic settlements were excavated which yielded stone inscriptions and carvings, papyri, leaves of parchment MSS., and various other remains. It is intended to carry on some work in this same region next winter, before the ground is sufficiently dry to work at Memphis.

EDITORIAL NOTES

COFFINS FOR MICE.—Professor Garstang has discovered at Abydos, Egypt, a number of small coffins for mice, with figures of mice on the top. These belong to the Ptolemaic period.

CAUSE OF PREPONDERANCE OF CONSONANTS IN NORTHERN LANGUAGES.—In a recent book by Col. L. A. Waddell, on *Lhasa and Its Mysteries*, he puts forth the theory that the excess of consonants in the Tibetan, Russian, and most Arctic languages had its cause in the cold climate, which leads the people to keep their mouths nearly closed, while talking, in order to exclude the cold air.

OLDER CITY AT TIRYNS.—It is announced that Doctor Dörpfeld in continuing excavations at Tiryns has found an older prehistoric city underneath the one which Schliemann excavated. This lower city has none of the extensive system of galleries and fortifications characteristic of the later city. Thus it seems to approach in style of architecture the Cretan palaces at Cnossus and Phæstus.

LATIN GUIDE THROUGH ROME.—In a collection of Egyptian papyri Prof. Jules Nicole is reported to have found among some Greek texts an ancient Latin guide through Rome. As it contains an inventory of sculpture and indicates the locality where each piece was located, as well as describes each, it may prove of importance in supplying us with data for the attribution of as yet nameless statues.

ANCIENT GLASS MIRRORS.—A scientist who has recently been engaged in researches concerning ancient glass mirrors in Thrace and Egypt has come to the conclusion that the metal used to back them was almost pure lead. He believes that they were manufactured by pouring the molten lead on the concave surface of discs cut from balloons of blown glass.

EXCAVATIONS ON THE PALATINE.—While trying to determine the entrance to the Palatine Acropolis, as well as to explore the Necropolis, excavators in Rome are said to have found a circular ditch, either a pit or a tomb. Similar pits have been discovered in the Roman Forum. This is believed to be connected with the earliest habitation, and to have been constructed by founders of the Palatine stronghold.

PLAN TO EXCAVATE LOCRI AND CROTONA.—According to reports, Prof von Duhn, of Heidelberg, has proposed to the Italian government a plan for excavating the cities of Locri and Cro-

tona, in Magna Græcia. Both these cities were founded in 800 B. C., and were noted for their temples. The former was the place where the first written code of laws was drawn up by Zaleucus, and the latter was connected with Pythagoras.

NUBIAN EXCAVATIONS.—Dr. George A. Reisner, formerly in charge of the University of California work in Egypt, has been appointed by the Egyptian government to take charge of archaeological investigations in Nubia. The work will involve continuous excavations on both sides of the Nile, from Kalabsche to Derr. This is in anticipation of the raising of the dam at Assouan. Temples are to be restored, inscriptions copied, and buried monuments excavated.

STATUE OF LEDA IN THE BOSTON MUSEUM.—Owing to the liberality of the late Henry Lillie Pierce, the Boston Museum owns an early Greek marble inspired by the story of Leda and the Swan. Its style indicates the late V century B. C. as its date. Leda is springing forward to protect the swan. The pose and execution indicate that the figure was intended to be viewed from the right side, so it is probable that it had an architectural setting. The work is vigorous, but the technical power was imperfect.

FINDS IN TURKISTAN.—It is reported that Dr. N. A. Stein has made important archaeological discoveries in Chinese Turkestan. On an ancient village site he obtained a rich yield of antiquities, including records written on wooden tables in the script of the Kharosth. At Miran over 1,000 Tibetan documents were found. In a ruined Buddhist shrine were discovered many interesting art remains, some closely related to the Greco-Buddhist sculpture of the first century A. D.

CHRISTIAN RUINS SOUTH OF ALEXANDRIA.—Karl M. Kaufmann is reported to have found in the desert south of Alexandria an extensive field of Christian ruins. In this are included the remnants of the memorial church of the Alexandrian martyr Menas, two other Basilicas, and the site of a great Egyptian clay and pottery industry. A second expedition is to be sent to the same region. The modern name of the ruins is Boumna Karn Abu'm. The ancient city was still flourishing in the X century.

PROF. G. FREDERICK WRIGHT IN ENGLAND.—Professor Wright sails on September 6 for Antwerp, and after a short stop in Holland will cross to England, where he will deliver a series of lectures along the line of his recent book on the *Scientific Confirmations of Old Testament History*. He will also make some supplementary observations on various geological phenomena in southern England. His address will be Union of London and Smiths Bank, Limited, 2 Princess Street, London, E. C., England.

A Dutch translation of Professor Wright's new book has been made, which is to be issued in Holland in October, with an introduction by the celebrated Doctor Kuyper, late Prime Minister of Holland.

NILE BOAT MODELS.—There have been discovered in the "tomb sanctuary" of King Mentuhetep, models of Nile boats with their crews complete. The figures on the Royal Barge are kneeling around the figure of the King, who is deified as Osiris, as he passed on his last voyage down the Nile. These were discovered in a chamber of polished granite built deep in the mountain side and reached by a gallery 500 ft. long. In this chamber of beautifully polished blocks of granite faced in parts with slabs of alabaster, stood a "great *naos* or shrine of splendid alabaster blocks, with beams of red granite supporting the alabaster roof." Although no coffin was found the usual appurtenances of an XI dynasty burial were scattered over the floor of the chamber. Professor Naville is "inclined to believe that this hypogæum is not the actual tomb of the King, but rather a sanctuary of the royal *ka* [a man's spirit or double] made in the form of a tomb and provided with all the usual furniture of the tomb of that period as would befit a 'house of the *ka*.'"

DOCTOR FEWKES' WORK IN THE SOUTHWEST.—Last year Dr. J. Walter Fewkes spent the winter in excavating and preserving the magnificent ruins of Casa Grande. During this time he was able to excavate over two-thirds of the area, strengthen and protect the walls, and restore them in places. This autumn he will return to Casa Grande and complete the work which will insure the permanent preservation of this ruin, which has been superficially looked at and photographed by many scientists and museum expeditions, but never systematically studied. The Smithsonian Institution is to be specially commended for taking up this important work, and congratulated in securing the services of so enthusiastic and skilful a man as Doctor Fewkes for this work. After completing the work at Casa Grande, Doctor Fewkes will go to the Cliff Palace in Colorado for the remainder of the season to work on that ruin. Here he will do some excavating, but more time will be devoted to strengthening the walls of the Cliff Palace, which are in bad condition and liable to fall. This ruin, from its striking position in the cliffs of Mesa Verde, is of fully as great interest to the general public as the Casa Grande ruins.

MARKING THE SANTA FE TRAIL.—The first monument marking the site of the old Santa Fe trail in Colorado was erected on August 16, of this year, near Lamar. The Colorado Daughters of the Revolution were the prime movers in this work of preserving the location of this historic trail.





TEMPLES IN SICILY

TEMPLE OF CASTOR AND POLLUX
AT GIRGENTI [FIG. 12]

TEMPLE C AT SELINUS [FIG. 7]

TEMPLE G AT SELINUS [FIG. 9]

CATHEDRAL CAMPANILE AT
PALERMO [FIG. 2]

RECORDS ^{OF} THE PAST

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AN ARCHAEOLOGICAL TOUR THROUGH SICILY WITH A CAMERA

GOETHE once said: "To know Europe one must know Italy; to know Italy one must know Sicily; Italy, without Sicily, leaves no image in the soul; Sicily is the key to all." If this be true it must also be true that a very small proportion of the multitudes that annually visit Europe do not really "know Europe," for so few, comparatively speaking, go to Sicily. Reasons for this have not been hard to find. For, while it has been known that the island of Sicily is "the pearl of the Mediterranean," it has also been known as the land of "earthquakes, brigands, and social disorders." These have appeared as sufficient reasons why most people should stay away. However, through efforts put forth in the last few years by public officials, railroad managers, and hotel keepers, most of the evils, other than those which nature herself threatens, have been done away with. The manifold interests in the island, because of its strange history, its wonderful ruins of by-gone ages, the strange customs and costumes not to be found even in southern Italy—all this combined with a most charming climate and wonderful scenery, makes it a land easily worth the time and money which a tour of the island costs.

A tour of Sicily should not be made without at least having an outline of its history in mind. It has been said that this little land has

been "The Checker-board of the Nations." Let us see. Away back in what is conveniently called the pre-historic times we find legends of Cyclopes, Gigantes, Lotophagi, Læstrygones, and other monsters that were supposed to roam over the island with heads touching the clouds and pine-tree trunks guiding their footsteps as walking sticks. Getting a little closer to facts there are named two races of early peoples, known as the Sikels and Sicans, that settled in different strategic points. Meagre remains of these early settlements have been excavated and more or less pottery found. These people we may date by saying that they were earlier than 1500 B. C. The Greeks came in 735 B. C., and settled in Syracuse. During the time of their supremacy cruel tyrants rose and fell. Phalaras, Dionysius, Theron, Gelon, Hiero, and others, ruled in different cities, and practised their cruelties. During all this time the Phœnicians came again and again to this part, and then to that, conquering and being conquered. The splendid ruins of temples and theaters to be seen at Selinus, Girgenti, Syracuse, and elsewhere, belong to the Greek period.

Then there is the Roman period. And we can not think of this without being reminded of the fact that these Roman governors were wicked and did much to pull down and retard progress. Servile wars followed in the years 132 and again in 103 B. C.

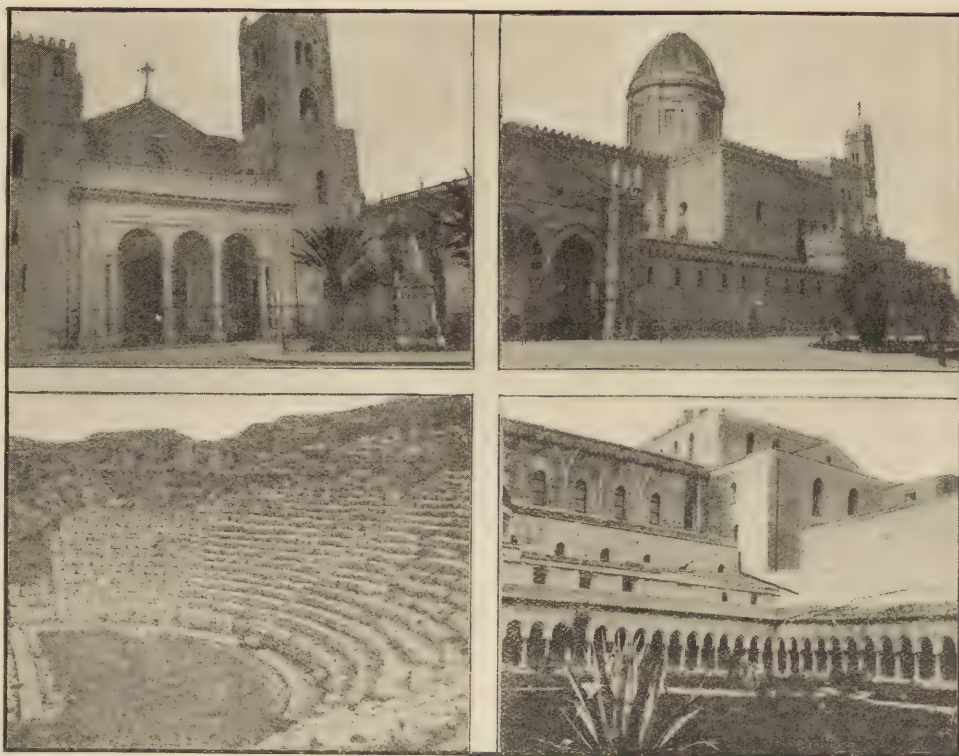
The Saracen period began about 827 A. D. The Mohammedans took Palermo and Syracuse and flourished most during the latter half of the X century. In the middle of the XI century came the Normans, represented by Robert and Roger of Normandy.

The next period was that of Charles of Anjou and Peter of Aragon, that is of the French and the Spaniards.

Not till the year 1848 did Sicily become free under Ruggiero Settimo, and it was only 12 years later that Garibaldi landed in the extreme western part of the island, and, after a few successful engagements, united it to Italy in 1860 as the United Kingdom of Italy. These historic bones are indeed dry, but so much at least we need to have in mind before we begin our journey, or we can not at all understand the significance of many things that we shall see. With these things in mind we readily see the force of the expressions, "The Checker-board of the Nations" and "The Archæological Museum of Europe."

There are two ways of reaching the island. One is to take the splendid train that runs down from the north twice a week and cross by ferry from Italy to Messina. The other, in some ways preferable, is to take the mail steamer that leaves Naples every night at 7 and reaches the harbor of Palermo about the same hour the following morning.

Messina does not offer much that is interesting. The site is one of the earliest built upon, but the present city has been erected since 1848, with only here and there a trace of earlier periods. The Cathedral was founded by Count Roger in 1098, and has an interesting



MONREALE CATHEDRAL [FIG. 3]
THEATER AT SEGESTA [FIG. 5]

PALERMO CATHEDRAL [FIG. 1]
CLOISTERS OF MONREALE [FIG. 4]

doorway. The strait between the island at this point, and Italy, is where the monsters of olden times were located, namely Scylla and Charybdis. These forces of nature, a rock on one side and a strong whirlpool on the other, caused many a shipwreck, and it required but little imagination to fancy that living creatures were there to entice the foolish sailors into their power. The modern town as the center of the Messina lemon trade, which includes the whole island, is surprisingly active during the harvest of this "gold of Sicily."

The rail route from Messina to Palermo passes through Cefalu, an old Greek site known as Cephalaedium, now noted for its cathedral, which, ugly on the exterior, contains within, on its walls and ceiling, the finest and best preserved mosaics in the world. We do not except even those of St. Mark's. The cathedral was vowed by Roger II, who, on his return from Naples to Palermo, was overtaken by a great storm and vowed a cathedral to Christ and the Apostles on the spot where he should land. The representations in mosaics of the Master and His followers over the great altar of this early date, soon after 1129, are wonderful examples of the art of that period.

Palermo is the capital city and is rightly named "La Bianca," the White City. While there is not enough of the early days to detain the

traveler long, yet it is a spot in which one likes to tarry even after he "has done" the city. The palace, finer than that at Rome, the Cappella Palatina, a perfect gem of medieval art, built in 1132, by Roger II, and perhaps the most beautiful palace-chapel in the world, with its wonderful mosaics and woodwork, the remains of Spanish rule; the cathedral, busy streets, etc.—all make it hard to be satisfied with a brief visit.

The cathedral, without its modern Italian dome, is beautiful on the exterior. [Figs. 1 and 2.] Then there is the ruin known as S. Giovanni degli Eremiti, a very early Norman church, founded in 1132, in what was originally a mosque. Here is to be found the old guard who served under Garibaldi, Sicily's Abraham Lincoln. He tells his story with wonderfully impelling pathos, shows his wounds, and shouts "Viva Garibaldi! Viva Italia!" and then before you can catch your thoughts, shouts again, "Viva Lincoln!" and before you are really aware of it you are joining him in hurrahs for both these great emancipators. Palermo has the largest theater in Italy, and another beautiful one called the Garibaldi Theater. Here you see the splendid public gardens of which Goethe said in 1789: "It is the most wonderful place in the world." On the streets everywhere are to be found many things that are odd, many that are comical, not a few that are pathetic. Not the least interesting are the gorgeously painted two-wheeled carts, that have painted upon their sides scenes that range from the Old Testament stories clear down to the horrors of a dissecting table. Several excursions can be made from Palermo, notably to Monreale, where is to be seen another great cathedral with walls covered with more than 70,000 square feet of mosaics. [Figs. 3 and 4.]

It is a mistake to turn back to the eastern part of the island after finishing Palermo. The grandest and most stupendous ruins of Greek temples to be found in the world are in the western end. Do not fail to visit Segesta and Selinus. Segesta can be easily reached by taking a train that runs to Trapani. While a walk or drive of about 4 miles is necessary after reaching the station of Catalifimi, yet even the first impression that one receives upon rounding the last bend in the path, when that superb old Greek temple of the V century B. C. comes into sight, easily repays all the cost of the climb. Segesta, according to a Roman tradition, was founded by followers of Æneas, after their return from Troy. On one hill is the temple [Fig. 21], which had never been completed, facing the East, as was always the case, while on another hill a little higher was the town and the splendid theater. [Fig. 5.] No words are adequate to fitly describe these scenes. No wonder that those old Greeks did not feel the need of painted scenery. As one sits in the seats, still for the most part intact, and looks down upon the orchestra and stage, he has before his constant view a panorama of color that needs not the painter's brush to beautify. The browns and pinks of natural soil and rock are dotted



TEMPLE AT SEGESTA [FIG. 21]

here and there by the varied shades of green furnished by vineyard and olive. Above and around it all is the wonderful blue of the Sicilian sky, while across the scene now and then floats a bit of white cloud.

To visit the ruins of Selinus it is necessary to spend a night at Castlevetrano. Here carriages may be had for the 7 mile drive to the site of the ancient city. Selinus was founded in 628 B. C. It was the most westernly settlement of the Hellenes. On a hill, only 154 ft. above the sea, was the acropolis, which was completely surrounded by a great wall with bastions on the corners. Within this walled enclosure were 5 great temples, now known as temples O, A, B, C, D. The people of Selinus and Segesta found it hard to live at peace. Their dissensions gave the Athenians, in 415 B. C., and the Carthaginians, 6 years later, a pretext for interfering in the affairs of Sicily. Hannibal, as an ally of Segesta, attacked the town with 100,000 men. Help from Syracuse came too late; 16,000 inhabitants were put to the sword and 5,000 were carried off to Africa as captives. From this blow Selinus never recovered.

The temples within this acropolis enclosure are among the oldest known, and the sculptures which have been found there, now preserved in the museum at Palermo, are of especial value, for they show the progress of the sculptor's art at this very early age. The well-known reliefs of Perseus slaying the Medusa, and Hercules carrying



TEMPLE RUINS AT SELINUS
[FIG. 8]

CAPITAL OF COLUMN, TEMPLE G
AT SELINUS [FIG. 10]

TEMPLE C AT SELINUS [FIG. 6]

TEMPLE OF HERCULES AT
GIRGENTI [FIG. 11]

off the Cercopes are among the metopes found in excavating temple C. [Figs. 6, 7, and 8.] About half a mile from the acropolis are the ruins of 3 other temples, called for convenience E, F, and G. Temple G [Fig. 9] is one of the largest temples ever built by the Greeks, and dates from the second half of the VI century. Its length was 371 ft., width 177 ft., and the columns were 54 ft. high. These great drums were quarried at Campobello, about 6 miles away. Unfinished drums can still be seen there, while still others are seen by the wayside, which were being transported at the time of the fall of the city. One little capital [Fig. 10], but 13 ft. square, still lies on the ground with the ruined temple to make us question again and again how the men of that early day handled such enormous weights.

A continuation of the trip to the western end brings us to Marsala, the ancient fortress of the Carthaginians, Lilybæum, and then to Trapani, which the Greeks and Romans knew as Drepanum. Drepanum stood at the foot of Mt. Eryx. Here the Trojans, under Æneas, celebrated games in honor of Anchises, the hero's old father. Upon the summit of Eryx, just before they continued their long jour-



TOWN OF TAORMINA [FIG. 14]

GIANT OF ZEUS AT GIRGENTI
[FIG. 13]INTERIOR OF FORT EURYALUS AT
SYRACUSE [FIG. 16]FOUNT OF ARETHUSA AT
SYRACUSE [FIG. 15]

ney toward the spot where they should make the beginnings of the Roman city and race, they dedicated a temple to Venus, their patron goddess. It is said that long before this time there was a temple that had been dedicated to Astarte, the Phœnician goddess, corresponding to Baal. Later came the Greeks and rebuilt the temple in honor of Aphrodite. Then the Romans consecrated it to Venus, the mother of Æneas, while at the present time there is to be seen on the same spot a church to the Madonna of all the Graces.

So we see how, in the lapse of many ages, priestesses of Astarte became the priestesses of Aphrodite, then of Venus, and now are a sisterhood of holy nuns.

To reach Girgenti, which is on the south coast, about in the center, it is necessary to retrace one's steps clear back to Palermo and start from there anew. This city, called by the Greeks, Acragas, by the Romans Agrigentum, to-day Girgenti, the old Greek, Pindar, said is "the most beautiful city of mortals." It was founded as early as 582 B. C. Various tyrants ruled here, among the number Phalaras

of brazen bull fame. The temple area was unusually large and was situated between the acropolis and the sea. It is known that the city was very powerful at one time, with a population variously estimated at from 200,000 to 800,000. Like many other Sicilian cities it yielded to the power of Carthage and was largely destroyed by Hamilco in B. C. 416. The splendid temples were largely destroyed at that time, but even so, the remains are among the finest in existence to-day. Not in Greece can finer ruins be found. With one possible exception, in the Theseum at Athens, no Greek temple is so finely preserved as that known as the Temple of Concord. This and the temple of Juno, of Hercules [Fig. 11], of Castor, and Pollux [Fig. 12], and others, all date from the IV to the VI centuries B. C. Besides these there is the Zeus temple, which is the second largest ever built by the Greeks. Only that famous Diana temple at Ephesus exceeds its dimensions. Its exterior was 372 ft. by 182 ft., with great columns over 55 ft. high. There were 38 of these huge engaged columns, but of the whole structure very little remains on the site. One thing of special interest is a great stone giant 25 ft. high [Fig. 13], which still lies upon the ground. He, with 37 of his brothers, at one time served to uphold some portion of the roof of this enormous temple.

From Girgenti one naturally turns his face seriously to the eastern coast, and as he does so passes through the sulphur regions, a product which rivals the lemon for the proud title of "gold of Sicily." Methods of mining are primitive in the extreme. Much of the sulphur is brought out from the earth by young boys, who have a pale, gaunt look, which indicates what is all too true—short existence. Yet, in spite of reckless waste and crude methods, in 1900 nearly 600,000 tons, valued at \$9,500,000, were taken from the earth and marketed. The journey from Girgenti to the eastern shore may very profitably be broken by spending a night at Enna. This was the ancient name of Castrogiovanni, the place called the umbilicus, or navel, of Sicily. The little town is perched high upon a hill, more than 2,600 ft. up, and to-day gives no evidence of the fact that it was once supposed to be in the very midst of plenty. The goddess of the harvest, Ceres, was worshipped here. Very close to this spot was where Pluto was said to have carried off Ceres' daughter, Proserpina. Milton has sung, "That fair land of Enna, where Proserpina gathering flowers, herself a fairer flower, by gloomy Dis was gathered, that cost Ceres all that pain to seek her through the world." There is no evidence, as I have said, in the present town of plenty. Its inhabitants seem pinched and hungry, and yet on a certain anniversary day the tradition of Demeter is kept alive in their worship of the "Madonna of all the Graces," for sheaves of grain and flowers are placed before her statue in the cathedral.

One must not fail to visit Taormina. Of all the most beautiful spots which one is sure to see in such a tour, this is the most beautiful. [Fig. 14.] The town itself, snow-capped Ætna in the distance, the



ROMAN AMPHITHEATER AT
SYRACUSE [FIG. 19]
GREEK THEATER AT SYRACUSE
[FIG. 18]

STONE-QUARRIES AT SYRACUSE
[FIG. 17]
TEMPLE OF APOLLO AT SYRACUSE
[FIG. 20]

splendid ruin of the Greek theater, and the many vistas of the glorious sea, all combine to make an attraction that ever delays thoughts of departure.

Catania, the city which lies "beneath Ætna," the tourist may hastily see as he passes southward for the last point of supreme interest.

This city has suffered much and many times from the awful baptisms of fire from the great volcano, Ætna, and it is with great difficulty that the tourist finds even traces of the theater and other buildings of early days. Out in the harbor, however, can easily be seen the great rocks that the huge, man-eating giant, Polyphemus, hurled at Ulysses and his followers as they endeavored to escape from their terrible experiences within the monster's cave.

One's first impressions of Syracuse, especially if he arrive by train, are apt to be disappointing. It is not a hill-town like Girgenti or Enna; it is not a city situated at the foot of a hill, like Trapani or Catania; nor at the foot of a high ridge, like Cephalu; nor in a great plain, like Palermo. It lies almost entirely on an island, rather flatly situated. And yet one cannot behold Syracuse unmoved. It is a city

founded 26 centuries ago by one Archias, by the fountain of Arethusa. [Fig. 15.] Arethusa was a nymph of Elis, who was loved by the river god, Alpheus. His love was not, however, reciprocated, and when the nymph appealed to the deities for aid to escape the pursuing god, she was allowed to disappear in the ground. She appeared again away off in Sicily, in the form of this beautiful fountain, having passed beneath all of the intervening salt sea. The fountain is one of fresh water, from which the sea has been shut out by dykes. The famous Roman orator, Cicero, in his masterly oration against the unjust governor, Verres, describes this city and divides it into 4 parts. In addressing the judges, he says: "Syracuse is the greatest of the Greek cities, and the most beautiful of them all. It is so, O Judges, by its situation, which is strongly fortified on every side by which you can approach it, whether by sea or land, most beautiful to behold." He gives as the 4 parts Ortygia, the Island; Achridina, Tycha, and Neapolis. There was really a fifth part, however, and one of great importance. This is Epipolæ, with its famous fort, Euryalus [Fig. 16], situated on the mainland a little back and above the city proper, and yet as its defense should be included as a part of the city. As Syracuse had been founded by men of ancient Corinth it was a rival of Athens. It had become very powerful and in 414 B. C., Athens determined, if possible, to conquer it, and so perhaps overthrow her rival Corinth. The plan of attack was to build a great double wall from sea to sea, between the city and this fort, and so cut off the people from their fortress. The city was almost upon the point of yielding when Gylippus came to its relief with reinforcements and broke through the Athenian wall. A little later, under the famous general, Demosthenes, the Athenians made a desperate attempt to take Epipolæ by night, but were repulsed with great slaughter. Disease broke out in their camp and dissensions arose. They decided to retreat, and were so unfortunate as to choose a night in which the moon was in full eclipse. So superstitious were the people that they were thrown into a panic by this freak of nature; the Syracusans fell upon them and all but annihilated them, taking 7,000 prisoners. The great Greek historian, Thucydides, describes what followed. These 7,000 men were thrown into the stone-quarry, known as the *Latomia dé Cappuccini*. [Fig. 17.] This spot that to-day looks so much like a beautiful garden with its lemon, orange, and pomegranate trees, and luxuriant vines, was at that time "the Gethsemane of a nation." Here 7,000 Greeks were shut up and left to die of wounds and diseases. Here, tormented by thirst, by hunger, by heat, by cold, by poisons, "the pupils of Socrates, the admirers of Euripides, the orators of the Pnyx, the athletes of the stadium—died like dogs." Thucydides says that for 70 days the 7,000 were kept here and treated with great cruelty, receiving each, daily, one-half pint of water and 2 of grain. A few won release by being able to recite selections from Euripides. A few were sold into slavery, but a majority died in this prison-quarry till at last there remained no



ANAPO RIVER LINED WITH PAPYRUS PLANTS [FIG. 22]

remnant of the most splendid armament of Athens but heaps of corpses, putrefying bodies of dead men. Not far from this stone-quarry are others, the most famous being known as the Ear of Dyonisius. Of the Greek period there is preserved a splendid great theater [Fig. 18], dating from the V century B. C. This is the third largest theater the Greeks ever built and had seats for some 24,000 people. Even now can be seen, carved in Greek characters, the names of old King Hiero and others of his day. Then there is the great altar of Hiero II, 645 ft. by 75 ft., on which were offered every year, upon the anniversary of the expulsion of the tyrant, Thrasybulus, 450 oxen. Of the Roman period, the time of Augustus Cæsar, we find splendid remains of an amphitheater. [Fig. 19.]

When we pass over to the island, known as Ortygia, we find few ruins. One is that of a very old and large Greek temple to Apollo [Fig. 20], or possibly Diana, but in small part excavated, and the Doric columns of the temple of Minerva, now built into the modern cathedral. This was the temple that Verres plundered, of which Cicero writes in the oration referred to above.

The modern town has little of interest that differs from other Sicilian cities. The museum is well worth a visit and contains a marble Venus that ranks high among such works of art.

There is one other point to visit, one little excursion to make, and our tour is over. We often ask "What did the ancients use for paper? Upon what did they write their letters and books?" Not only did they use parchment, but a paper, which was far cheaper, made from the papyrus plant. Nowhere else, except in Egypt, can it be seen

growing naturally in great luxuriance than here, near Syracuse. By crossing the large harbor one can enter the mouth of the little river Anapo, and continue up its course till the branch called the Cyane is reached. Following this, one is rowed or "poled" for a long distance between banks thickly lined with great plants 20 or more feet high [Fig. 22], until the journey at length ends in the great spring which is the source of the stream, the pool of Cyane. When Pluto carried off Proserpina, the water Nymph, Cyane protested so loudly that the king of the infernal regions drowned her in this pool, which even yet bears her name. It is a pool of azure blue, some 40 to 50 ft. deep, almost surrounded with the papyrus. Here we stop and ponder. Here we may, in a most peaceful spot, review in our minds our whole tour, and here we will be ready to assent to those splendid titles that we had in mind when we first set foot in Sicily, the Checker-board of the Nations, the Archæological Museum of Europe, the Pearl of the Mediterranean.

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THE BEGINNINGS OF IRON*

FORMERLY, it was generally believed that iron was the gift of Africa to mankind, and if not of Africa, most certainly of Asia. Modern research has shown that Egypt did not use iron until about B. C. 800, that the Libyans were not using it in B. C. 480, and that the Semitic peoples did not use it from a remote past, but borrowed it comparatively late. I urged, in 1896 and in 1902, that Central Europe was the true center of the use of iron as a metal, and that it was first diffused from Noricum. At Hallstatt iron was seen coming into use first to decorate bronze, then to form the edge of cutting implements; next, it gradually replaced bronze weapons, and finally took new forms of its own. Everywhere else iron as a metal came into use *per saltum*. Man probably found it ready smelted by nature, as the Eskimo discovered it at Regents' Bay and at Ovifak. Some still imagine that it was used very early in Egypt, because its name occurs in early documents. But this is readily explained, since hematite was known and used very early in Egypt, and the same material was used very commonly in the Ægean long before the Bronze age. But it was treated not as a metal to be smelted, but as a stone to be ground into axes and beads. The Egyp-

*EDITOR'S NOTE—At the recent meeting of the British Association at Leicester, July 31 to August 7, Professor Ridgeway read a paper on *The Beginnings of Iron*, which called forth considerable discussion. This is of such general interest, we here quote the abstract of Professor Ridgeway's paper and of the discussion following, as condensed in *Man* [London].

tians thus used the material, and had a name for it, which they continued to employ when they had learned its use as a metal from Europe. Others also cling to the belief that iron was worked in Central Asia from a remote time. But in Uganda, which was in touch with Egypt by means of the great lakes, iron, as I am informed by the Rev. J. Roscoe, became first known in the reign of a king about 19 reigns back (about 500 or 400 years ago). This renders it very unlikely that the metal was worked until very late in Central Africa. It is certain that the peoples beyond the Caspian, as well as those along the Indian Ocean, did not use iron until quite late, that India herself did not know of it at an early date, and that Japan only got it about 700 A. D., yet some still imagine that it must have been known to the Chinese from remote antiquity. But the earliest mention of iron in Chinese literature is about B. C. 400, while a bronze sword belonging to Canon Greenwell has an inscription, read by Professor Giles, which dates it between B. C. 247 and 220. There is evidence that bronze swords were being used till A. D. 100, and that it was only then that iron swords were coming in. It is now clear that the use of iron as a metal is due to Central Europe.

In the discussion which followed this paper, Professor Naville thought that a distinction must be made between the knowledge of iron and its general use. In Egypt, in the Old Empire, there were two or three cases of iron being found, but in the New Empire iron did not seem to have been commonly used. In the excavations of Deir-el-Bahari no iron tools were found. The general use of iron in Egypt could not be traced before the Greek time.

Prof. W. M. Flinders Petrie observed that the distinction between the sporadic and the general use of material must be kept in view. Flint was used for economic purposes down to the Roman age in Egypt, although copper was known for 8,000 years before. Bronze was known by 4800 B. C., yet did not come into use till 3,000 years later. Iron was known for 4,000 years before it came into economic use. This sporadic use strongly supported Professor Ridgeway's view of the use of native iron, for had a process of reduction been invented, it was unlikely that it would have lagged for 4,000 years before its common use, whereas, native iron might be occasionally discovered and worked by man discontinuously.

Mr. Arthur Evans pointed out that the great obstacle in the way of Professor Ridgeway's view as to the diffusion of the use of iron from a Noric source, was the comparatively late date of the early Iron-age civilization of the Hallstatt area. The cemeteries of Southern Bosnia showed an earlier phase, and those of the geometrical and sub-Minoan tombs of Greece and Crete a still earlier. No doubt the general adoption of iron in the Ægean countries corresponded with the break-up of the earlier Minoan and Mycenæan type of culture, and the diffusion of an Italian and Northwestern sword type. But the translation of this type into iron probably effected itself in a southern area.

Prof. R. C. Bosanquet observed that there was very little available evidence as to the Bronze age in Macedonia and Etrus, and even in the northern provinces of the modern kingdom of Greece. It was, therefore, impossible to test the theory that the general use of iron had made its way into Greece from the north. He described recent finds of bronze spear-heads and axes with an iron spear-butt by peasants in the northwest of the Peloponnese in a tomb with late Mycenæan vases. The presence of these axes there might be taken as evidence of trade with Italy, and the iron spear-butt, unknown elsewhere in the Ægean, might also prove of northern type. The tomb found at Muliana in Eastern Crete, had furnished evidence of the transition from inhumation to cremation, from iron to bronze, the link between the two interments in it being the pottery which in both cases was definitely late Minoan and not Geometric.

Mr. W. Crooke remarked that the evidence for the age of iron in India had not apparently been fully recognized. Excavations of South Indian interments showed iron objects side by side with bronze vases and other objects, which were possibly Babylonian. Intercourse between Babylonia and South India had been traced historically as early as 800 B. C., and probably existed from a much earlier period. Besides this, many jungle tribes manufactured iron by very primitive methods. At any rate, iron must have been in common use in the time of Xerxes, whose Indian mercenaries were armed with iron. The inference was that India might have been the scene of an early independent discovery of iron not derived from Europe or Babylonia.

Prof. J. L. Myres thought that Professor Ridgeway's argument that the knowledge of iron as useful metal spread from a center in Noricum or its neighborhood stood in no logical relation to his assumption that the question of the early iron age in Europe was that of the first use of iron at all. For it happened not infrequently that materials which had long been known as curiosities in one area were, when transferred to another area, discovered to have new utility and widely disseminated thence. Not only did iron objects occur in Egypt and the Ægean in earlier deposits than in Central Europe, but the forms of the early metal furnaces and the modes of smelting pointed to a well-defined quality in man's knowledge of iron. Egypt and the Mediterranean, with the "open-hearth" process, were restricted to a small output of iron, and used it as a rarity until the North, with its "blast-furnace" principle, produced iron in copious amount, and of a quality more suitable for cutting weapons.



ADDITIONS TO THE MANUSCRIPTS IN THE BRITISH MUSEUM.—The last catalogue of the additions to the British Museum during the years 1900 to 1905, contains a full description of 970 manuscripts, 9,116 charters, 911 seals, and 782 papyri.



EAST WALL OF DUG HILL, MO., LOOKING SOUTH

A PALAEOLITHIC IMPLEMENT FROM THE LOESS

ON AUGUST 24, 1907, an implement of unusual interest was found embedded in loess, undoubtedly original, and apparently previously undisturbed. It was found in an old cut known as Dug Hill, situated at the northwest limits of St. Joseph, Mo., by Mr. George Y. Hull. A laborer at the stone-quarry, some distance to the north, informed Mr. Hull that in passing through the cut that morning on the way to work he had noticed, at a point too high to reach, a small, black spot in the wall of the cut that might be some kind of implement; he had not had time for an examination. Modern implements, near the surface in that locality, are by no means rare, but, being a collector, Mr. Hull went immediately to secure what he expected to be nothing of more consequence than a flint arrow-point. With a precarious foothold 3 ft. above the base of the perpendicular wall, and only a broken stick to work with, the find was soon observed to be of a wholly unusual kind, and so firmly embedded in the compact loess that the task of removal was extremely slow and difficult. Only a small portion of the base of the implement had been exposed to view. As work progressed it was seen to be inclined at a low angle with the point downward and resting so that one broad surface was subject to the full influence of downward percolation, while the reverse side was almost wholly protected.

For these facts, Mr. Hull is willing to vouch in a sworn affidavit, if desired. He is a lawyer and aware of the imperative value of facts

only in scientific matters. Thinking the find might possess geological significance, he brought the relic to me for an opinion.

The exact measurements of the implement are $4\frac{3}{8}$ in. in length, $2\frac{3}{8}$ at the broadest part, and a trifle over $\frac{5}{8}$ of an in. at its greatest thickness. It has been chipped from a pebble of very fine, close-grained, black trap-rock, which shows no independent crystals under a glass which magnifies 18 times. Similar pebbles are occasionally noticed in the drift of this locality. An exposure of such rock in place is known in the northern part of the Black Hills, and is mentioned among the porphyries by Prof. J. E. Todd, in his *Mineral Resources of South Dakota*, wherein he quotes from a paper by Dr. J. D. Irving, on the geology of the Hills. He says: "In this paper description is given of an eruptive rock in Bear Gulch, west of Spearfish Creek. 'It is a dense, black rock, carrying no noticeable phenocrysts, and of extremely fine grain.' This may eventually be of value to those desiring a fine, black rock for ornamental purposes."

The chipping of the implement distinctly registers its association with a period greatly antedating that of other implements common to the locality, although the workmanship is fairly good, excepting for the space of nearly an inch midway of one edge, which has been left blunt, with a flat surface almost half an inch thick interrupting the knife-edge. The cleavage is similar to that of a piece of obsidian from the Yellowstone, but the surfaces have lost the sharp lines produced by flaking, and plainly show the worn condition due to much service. The side which was uppermost during the time of burial is nearly covered with a thin crust of iron oxide in small, irregular patches deposited from the loess, while the reverse side is almost free of such deposit. No pitting can be observed by the unaided eye, but under the glass the effects of chemical action are distinctly seen.

Dug Hill is the familiar name of an old cut at the city limits on the northwest, as before stated, where the main ridge of the bluff spreads abruptly to the eastward from the river. The cut was made in the early '60s, during the war, for the purpose of easing the grade for heavy wagons hauling army supplies to a fort established by Union troops at the highest point of the bluff, overlooking both the town and river. It extends northwest-southeast in a curving line through the lowest portion of the ridge; and, although slightly deepened in recent years, the walls still show the original exposures of more than 40 years ago and their perpendicular is unimpaired. Since no levels have ever been run there by either the city or county it was necessary to engage an engineer to ascertain the desired elevations. He found the highest point of the road in the cut to be 139 7-10 ft. above high water; the highest point of the east wall, in which the implement was embedded, to be 189 ft. above high water, and the highest point of the bluff in that locality, Prospect Hill, to be 202 ft. The high-water mark used for reckoning data at St. Joseph is 812 9-10 ft. above the mean tide of the Gulf of Mexico.



IMPLEMENT FROM DUG HILL, MO. ACTUAL SIZE. VIEW OF
FRONT, AND IMPERFECT EDGE

The loess exposed in this cut is not stratified, although the work of excavation has been done in a manner that gives that appearance in a photograph. The implement was embedded 10 ft. above the road at its highest portion, and a short distance beyond where the ridge begins to slope toward the north. It was not less than 20 ft. below the natural surface, but this can not be given with exactness, because it has amused small boys to make some excavations just at that portion of the hill top. This, however, is not to be regretted since the disadvantage of their work in preventing positive figures as to the depth of the implement below the natural surface is offset by the fact that in making a path to the summit, they worked in behind the wall, leaving a sort of parapet 2 ft. thick directly above the implement site. That this thin parapet continues to retain its position as firmly as if it were of solid rock is positive evidence that the deposit is original loess and previously undisturbed.

Diligent search for fossils in the main portion of the cut was rewarded only with one small, fragile *Succinea obliqua*, at 31 ft. above

the road on the east, and an equally imperfect *Patula alternata*, near the base of the west wall, where it seemed to have lodged when washed from a higher point, while in the base of the northern slope of the ridge we found a fine specimen of *Polygyra multilineata*, of tropical size, only 2 ft. below the black loam.

LUELLA A. OWEN.

St. Joseph, Mo.



ROMAN PORTRAIT HEAD [FIG. 6]

ROMAN PORTRAIT HEAD IN VASSAR COLLEGE

AMONG the important antique marbles in Vassar College one of the finest is a Roman portrait head [Fig. 1], which, like the statue of a woman,¹ belonged to the Giustiniani collection in Rome, and was presented to the college by Mrs. F. F. Thompson. The head is placed on what appears to be a Greek body [Fig. 2], seated on a chair, the copious restorations of which render a definite verdict difficult. The body itself, in the first place, is carved "in the round," but with so much foreshortening that it undoubtedly was part of a very high relief. [Fig. 3.] The excellent state of preservation of the drapery and the absence of corrosion everywhere except on the hand [Figs. 2 and 5], which is carved on the "highest" plane, show that it was protected from the inclemency of the weather. The

¹Cf. *Greek Draped Figure in Vassar College*, RECORDS OF THE PAST, Vol. VI, pp. 227, ff.



PROFILE OF ROMAN PORTRAIT HEAD [FIG. 1]

hand, however, is so badly damaged, possibly by the drop of water from a roof, that it has lost every vestige of its original modelling, and to-day appears unduly broad. While it is, of course, impossible to state in what connection the original Greek body was carved, there are so many instances of similarly designed and executed bodies among the extant Greek grave reliefs, that one readily accepts the theory that this Greek once sat inside one of those shrine-like frames, which abound from the IV century B. C. It is not at all unusual in these grave reliefs to have some parts, as the hand in this case, project beyond the limits of the protecting roof.

The folds of the drapery [Fig. 2], barring those which are restored on the chair, are not only arranged with great skill, but also beautifully carved. They are conventional, to be sure, but their workmanship raises them far above the average artistic level of the grave reliefs of the IV century. Vassar College possesses here, not the work of one of the masters, but a sample of what even lesser men could do.

Those defects of perspective which appear in the photograph are due to faulty restorations. The block was originally tilted differently [Fig. 3], and raised to a considerable height. Experiments last win-



ROMAN PORTRAIT HEAD [FIG. 4]

ter with the block along these lines proved conclusively that the perspective for the original view of the statue was correct.

Figures 2, 3, and 4 give a clearer account of the restorations than is possible in words. The right leg of the chair is entirely new. Part of the other leg is antique, but it has been recarved to match the new leg. The fringes on the edge of the chair [Fig. 2], probably were carved at the same time. They give one the impression of machine work. Above them there once rested a projecting cushion, which undoubtedly was badly broken. The restorer, therefore, made it disappear by transforming the remaining fragments into folds and smoothing over the intervening spaces. Just when this work was done, can not be told, but a possible hint is contained in the unfinished block [Fig. 5], with its well-defined moulding which was used in the restoration. A hint, provided one succeeds in identifying it with other frag-



ROMAN STATUE AT VASSAR [FIG. 2]



ROMAN PORTRAIT HEAD [FIG. 3]

ments of datable monuments. Until that question is settled it will be doubtful whether the fine Roman head was added in antiquity or at the time when the Giustiniani collection was formed. There are many parallels for the practise of adding original Roman heads to imported Greek bodies. The Emperor Caligula, for instance, aspired to have the Olympian Zeus, by Pheidias, transferred to Rome, and to exchange the divine head of Zeus for his own degenerate portrait.

On the other hand, the Vassar head is so beautiful and so distinctly the work of a master, that it is difficult to conceive how he could have been willing to carve it for a foreign body. The head, moreover, is that of a man absorbed in thought, while the gestures are those of an orator or a teacher. He has read his text, holding his roll of papyrus in both hands, and now he has shifted both parts of the papyrus to his left hand [Fig. 5], while with his right he is emphasizing his remarks. It is here where the statue will be of chief interest

to the archæologist and student of ancient manners, for to say the least it is very unusual to find representations in art of an unrolled papyrus held in one hand.² The papyrus generally appears rolled up, *i. e.*, the book is closed, when held in one hand, or open, as here, but then it is held in both hands. That this should be so is natural, for ancient art is rarely concerned with the accidental, the momentary, unless it is characteristic of the person portrayed. A papyrus held in the fashion of the Vassar marble implies a momentary pause in the reading of the book, and is characteristic of a man only if he habitually discoursed from manuscripts. This point can not have escaped the Roman portrait sculptor, and if one believes that it was he who



HAND, SHOWING METHOD OF HOLDING PAPYRUS ROLL [FIG. 5]

placed the head³ on this marble, then he may have done so because of this very peculiarity, even though he carved the features in thoughtful repose.

The argument is hypothetical, but it may possibly lead to the identification of this magnificent head. [Figs. 1 and 6.] At present this Roman gentleman with his long, regular skull,⁴ his high forehead, and his large, deep-seated eyes, is unknown to us. The jaw shows strength, but not obstinancy, and the straight mouth surrounded by

²The papyrus in art is discussed in a recent book by Th. Birth, *Die Buchrolle in der Kunst*. I have not yet been able to procure a copy of it. A friend who has made a specialty of these studies believes that the Vassar marble is unique.

³The head was broken and has been added again. It is impossible to tell whether properly. The marble of which it is carved seems to be the same as that of the torso and both seem to be Pentelic.

⁴The head measures 16 in. around the temples, with a greatest width of 5 in.

generous lips, makes us wish to hear the words of wisdom which we imagine this man used to utter. We have here one more head of the many which make us admire the Romans, and wonder how Rome could so soon have started on the path which led to her own destruction.

Fine Roman portrait heads are not rare; every large museum possesses one or more, but there are few which can pride themselves in owning better heads than or even comparable to that of this unknown man in Vassar College.

EDMUND VON MACH.

Cambridge, Mass.



PALESTINE EXPLORATION FUND

ONE statement which was made last month on the authority of the *Quarterly* must be corrected with regret. It was said that, in addition to the excavation at Gezer, which is being carried on by our organization, Professor Reissner had begun work on the site of Samaria, and Professor Sellin on the site of Jericho. The former was understood to represent the Harvard Semitic Museum, which had received money for that purpose from an American. It now appears that no permit was obtained, and, consequently, nothing has been done by Professor Reissner, and my informant adds that no permit is hoped for. Therefore, Sebastiyeh stands with its protruding Herodian columns untouched. A few years ago another American undertook to raise for the purpose of excavating that site a large fund, sufficient to carry on the work for many years, but no permit could be obtained, and conditional subscriptions lapsed. This site is so large that it really should not be entered upon without a reasonable prospect of completing it, and I believe that an international movement will be necessary to accomplish the task.

It is unfortunate that the American excavation of the site of Samaria did not come to pass, and that Professor Reissner has accepted a three years' appointment from the Egyptian government, but an official newspaper at Damascus did print a statement that the permit had been granted. The New York gentleman, who has done so much for the Harvard Semitic Museum, is not to be blamed for getting discouraged and withdrawing his promise of furnishing funds for the excavation. There is also reason to think that so large a task may as well wait until some fuller coöperation, such as that suggested above, is established.

Meanwhile, it appears that very extensive finds are being made in obscure places. The discovery of artistic tombs in Marissa astonished every one because no one believed that such finely painted tombs existed in Palestine, but there they are, as fine as in Egypt. Lately a discovery of an extensive burial place has been made at Ain Samich, which lies about 6 hours northeast of Jerusalem, on the edge of the Jordan Valley, in about the latitude of Joppa. How such burials came to be there, what was the name of the place, in Bible times, why did so much pottery come to be made just there, no one now knows; but a large collection of objects showing early art will be on view in due time at the Harvard Semitic Museum. Underground Palestine becomes each year more of a mystery. In Egypt and in Crete, even in Babylonia, we seem to be able to look up and down the ancient remains with some certainty of chronology, but Palestine holds its secrets of the past most tenaciously. Yet the partial excavation of Lachish yielded many data which are recorded in the "Mound of Many Cities," and now the through exploration of Gezer is adding to our knowledge of the times from the Cave-dwellers to the Crusaders. Another generation will know how much more than we do if the work is now vigorously prosecuted.

In regard to Jericho it is said that Professor Sellin, who did excellent work at Megiddo and Taanach, worked but 3 weeks and then stopped, but we may hear more of him there, because a permit would scarcely be granted for so short a time, because the heat may have compelled him to wait until autumn, and because he may be dependent for funds on his reporting at Vienna the results of a preliminary survey. It is known that he discovered an ancient city wall and so had every reason to follow up this clew.

But meanwhile, as usual for the last 40 years, only one organization is steadily at work, and that is our society, to which English and Americans contribute. The present permit runs two years, which is the usual term, but, as in previous cases it can undoubtedly be extended for a third year, if thorough work at Gezer should require it.

Speaking of the Harvard Semitic Museum, it is already well filled, but its curator, Prof. D. G. Lyon, has lately come home from spending a year in Jerusalem as head of the American School for Oriental Studies, and he brought new objects of interest, which will soon be on exhibition.

In the last *Quarterly*, Mr. Macalister, our explorer, treated of the "Garden Tomb," which was purchased at a great price by parties in England, after it had been declared by General Gordon to be the tomb of our Lord. He depended on a special revelation. Mr. Macalister raises many doubts as to the "Skull Hill," itself, but more especially he declares that this tomb is not earlier than 300 A. D., that it is really two tombs let into one by breaking down the partition, that other neighboring tombs also bear the letters Alpha and Omega, that it was not closed by a stone, but by a bolted door, and that the so-called win-

dow is not a window at all. To this article the editor adds a note to the effect that, after conversation with the late Sir Charles Wilson about the tomb, General Gordon expressed regret that he had committed himself to the site. Here, then, good money has been wasted on a sentimental basis, and so much money has been lost to reverent, scientific study. In view of this baseless claim, as Mr. Macalister remarks, Protestants are not in a position to blame Catholics for their adherence to traditional sites which do not bear scientific investigation.

It is interesting, in view of the account of the swastika in *RECORDS OF THE PAST* for August-September, to note that at least one instance of its occurrence in Palestine has been passed over by writers on the subject. In *Excavations in Palestine*, by Messrs. F. J. Bliss and R. A. S. Macalister, issued by our Fund in 1902, the swastika may be seen figured on plate 97. Mr. Macalister was describing burial caves which he had explored, and at a place in southern Palestine, called Khurbet Eb Ain, he noted this symbol. He speaks of it [page 225] as the first known instance of it in Palestine. I think that M. Clermont Ganneau has figured one in his *Archaeological Researches in Palestine*, but can not now verify the impression. It seems impossible as yet to use the swastika in Palestine or elsewhere as a note of time, except, of course, that it was a mark used before the Christian era. Any one who has walked through the Etruscan Museum at Rome or the National Museum at Athens must have seen numerous instances of the swastika. The theory of parallel development is coming into vogue, as appears from Prof. R. M. Burrows' recent volume, *The Discoveries in Crete*, and it is quite time that archæologists admit the possibility of independent developments of language, symbolic marks, and even writing.

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Honorary U. S. Secretary.

42 Quincy Street, Cambridge, Mass.



EDITORIAL NOTES

ROMAN COINS FROM SOUTH WILTS, ENGLAND.—A vessel containing 300 Roman silver coins and several silver rings of the period from 337 to 408 A. D., have been found at Grovely Wood, South Wilts, England.

ITALIAN ARCHÆOLOGICAL INSTITUTE AT ATHENS.—The Italian government is planning to found an archæological institute in Athens, modeled after the German archæological schools in Rome and Athens.

ORIGIN OF THE CRESCENT AS A MUHAMMADAN BADGE.—Prof. W. Ridgeway thinks that the Muhammadan crescent was taken from a pre-existing symbol, and the connection of the crescent with the moon was a later development. His line of argument is, that primitive peoples wore as amulets, claws, or tusks of the most powerful and dangerous animals. These, in time, were placed base to base, and the crescent form resulted, which was afterward adopted by the Muhammadans.

PUBLIC BATHS IN TIMGAD, ALGERIA.—In the old Roman city of Timgad there have already been discovered 6 public baths. Some of these are of very large dimensions, the largest ones being situated in the northern part outside of Trajan's Wall. One of these buildings, whose walls are 20 ft. high in places, measures 250 ft. by 210 ft. In the center of the building is the main hall, into which 4 main doors enter. Around this hall are ranged the other parts of the baths. One of these halls measures 80 ft. by 60 ft., and was originally very beautifully decorated. The general plan of all these baths is the same as that of those in Pompeii.

PAPYRI FROM A COPTIC CLOISTER IN UPPER EGYPT.—A large number of Greek and Coptic texts, dating from the VI century A. D., have recently been found in Upper Egypt, but not in the celebrated Oxyrhynchos district. Among them are gospel fragments, a sermon of Bishop Cyril of Jerusalem, who died in 386 A. D.; a document in the Nubian language, concerning canons of the Nicene Council, and 75 sheets, containing Sayings of the Lord in Coptic translation. The text of these Logia does not agree with any of the known Greek translations of these Sayings, and so probably represents a translation of a lost Greek collection.

AN ANCIENT "SCRIBBLER ON THE WALLS."—Judging from the inscriptions scribbled on old Roman walls and Egyptian monuments, it appears that travelers and sightseers of all historic periods, and probably earlier, have delighted in scrawling their names and various remarks on the walls in public places. An interesting instance of this is recorded by Mr. H. R. Hall, of the British Museum, who spent some time living in the tomb of Rameses IV. While there he noticed the following inscription in Greek: "I have come here, but I see nothing to admire at all—except the big stone." The Antiquarian [London] remarks on this, that the mental level of the "Scribbler on Walls" remains pretty constant in all ages.

FREE LECTURES AT PHILLIPS ACADEMY.—The Department of Archæology of Phillips Academy, Andover, Mass., announces the following free lectures, most of them illustrated, to be delivered in the lecture hall of the Archæology Building: October 31, *Evolution and the Ascent of Man*, by Prof. Warren K. Moorehead; November 31, *Prehistoric Man in Europe*, by Prof. Charles Peabody; December 5, *Prehistoric Man in America*, by Professor Moorehead; January 9, 1908, *The Plains Indians*, by Professor Moorehead; January 23, *Mound-building Tribes*, by Professor Moorehead; February 6, *Prehistoric and Primitive Art*, by Professor Peabody; February 20, *The Cliff-dwellers*, by Professor Moorehead; March 5, *Central and South American Archæology*, by Professor Peabody; March 19, *The Pueblo Culture*, by Professor Moorehead, and April 2, *The American Indian in History and His Destiny*, by Professor Moorehead.

NEW MEXICAN HISTORICAL DOCUMENTS.—The Historical Society of New Mexico is making an effort to raise funds for the purchase of a collection of historical documents in New Mexico, which extend from 1799 to 1846. "It is very full, not only of matters connected with the territory, but with a history of Mexico itself. It contains many documents relating to the first Mexican revolution and the empire under Iturbide. There are many papers signed by all of the Mexican governors during the time of the republic, and it is especially full of matter relating to the Revolution of 1837, when Governor Perez was killed. There are also a number of papers referring to the Texan invasion by the so-called Santa Fe expedition. Some of the later documents are signed by well-known citizens who survived to the present generation, like Diego Archuleta and José Pablo Gallegos. This collection has been kept in perfect order for 60 years." The necessity of placing these papers where they will be preserved is so great that it is to be hoped that Hon. L. Bradford Prince, the president of the Historical Society, and the main mover in this matter, will be successful in his effort to secure the funds needed.

HITTITE DISCOVERIES.—The University of Cornell Expedition made a number of interesting discoveries in the Hittite region of Asia Minor. The following quotation, from their first report, will give a general idea of the results of their first expedition to this region:

All the Hittite sites west of Kaisariye and Konia have been visited, and the inscriptions collated. Many new readings have been secured. At Boghaz-Keui, at the suggestion of the German excavators, the Hittite inscription, one of the largest known, and generally considered quite illegible, was studied, and as a result of two and a half days' work the greater part of the inscription was recovered. * * * At Angora and Boghaz-Keui cuneiform tablets were also obtained and one Hittite seal.

At Giaour Kalesi, a well-known Hittite site, the palace was planned and was found to be of a distinctly Mycenæan character. * * * Over fifty sites have been carefully examined and proved to be pre-classic, and of these a considerable proportion can be connected with an already known classic locality. The pre-classic site of Iconium, the most important city of southeastern Asia Minor, has been found. Much of the pottery found there is similar to the early types found at Troy, and a better site for excavation has not yet been seen by the expedition. * * * Over three thousand potsherds have thus far been collected and studied. Most important are the various sherds of Mycenæan character showing connection with the Greek world of the time of Homer. In the light of the material collected it seems almost certain that some of the earlier theories of the people of Asia Minor and their connections must be modified or abandoned. * * * A marble idol of a type hitherto found only in the Greek islands in pre-Mycenæan settlements was secured at Angora. This link between the early inhabitants of Greece and of Asia Minor is of very great interest.

NEED FOR SMALL MUSEUMS.—While the necessity for great museums with vast scientific collections is universally recognized, the equally necessary small museum is often lost sight of. The large museums have their difficulties in arranging and displaying their collections to the best advantage, for they must cater to the public, which wants to see something new and strange, and from which they doubtless absorb some education. They must, also, consider the class of educated seekers after information who are not specialists, but who want to examine the main stepping stones by which the specialists have come to their conclusions. Lastly there is the specialist, who desires to see all the slightest variation in plant, animal, pottery decoration, form of skull, etc. Obviously only a few museums can aspire to meet the demands of this last class of people.

In most of the small towns scattered throughout this country there are one or two "Collectors," who have at least a nucleus for an instructive local museum. If these persons would receive the stimulus of interest and support from the better educated people of the community, and especially from the school boards, small museums would spring up all over the land. School museums and representative collections are now used in a few of the large cities, and some of the historical and archæological societies are furthering this cause. We agree with Prof. Franz Boas that every encouragement should be given to the establishment of school museums and small local museums. Surely a small museum at hand is better than a great museum afar off.

SIGNOR BONI'S INVESTIGATIONS OF THE COLUMN OF TRAJAN.—Signor Boni has felt that the common opinion as to the purpose of the column of Trajan was incorrect, therefore a little over a year ago he turned his attention especially to it. It had been supposed that the column was not a sepulcher, but was a monument to the height of a hill leveled to make room for the Forum Ulpium. This, Signor Boni considered, not in accord with the statements of ancient

writers, and it did not seem to him that the dedicatory inscription, upon which this belief was based, clearly pointed to such a purpose. On the southern side of the pedestal a loophole attracted his attention, and also the traces in the inner vestibule at the base of a door, which had been walled up and plastered over. On removing the plaster and part of the masonry, he found that the door led into a small atrium, turning to the right, where a second door was discovered. This led into a marble-walled chamber 10 ft. by 5 ft. by 6 ft. Within were the remains of a funeral table $2\frac{1}{2}$ ft. high and 4 ft. wide. Above were holes drilled so as to suggest that clamps going out of the wall had supported two urns on the table. A temple built by Hadrian in honor of his father and mother Trajan and Plotina stands near the column. As it was the custom to erect such temples near the burying-places of the persons thus commemorated, it seems reasonable to conclude that this was a sepulchral chamber. Signor Boni believes the inscription has been misunderstood. The column is exactly 100 ft. high. It seems incredible that any natural hill should have had such exact measurements. Furthermore, digging near by reveals Roman remains, proving that the Forum Ulpium was level long before the column was built.

EARLY HISTORY OF BABYLONIA.—The following brief summary of that region of Asia included in the Tigro-Euphrates valley, as it appears since the investigations of Mr. L. W. King is so concise and of such general interest to those who are not specialists in Assyriology that we quote it in full from the *Athenaeum* [London]:

The civilization of Babylonia was entirely Sumerian, and the Semites came there only as raiders or settlers. Sargon of Accad was probably the founder of the Semitic Empire in Babylonia, and flourished somewhere about 3200 B. C. Before his death his empire was already severely shaken, and he was besieged in his own capital. He did not, as is sometimes said, cross the Mediterranean, the sea referred to in the usually quoted text being now seen to be the Persian Gulf. But the Sumerian element in the nation was not so easily subjugated by the Semites, as has been thought, and after the settlement of the I Dynasty at Babylon, Sumerian kings established themselves in the "Sea-Land" or coast country, and waged successful war against their Semitic rivals. Already in the time of the II Dynasty or Ur, the Sumerian Dungi, the son of Ur-Engur, had succeeded to most of Sargon's possessions, sacked Babylon, and had carried off the spoils of the Semites to his own capital of Erech. The Semites again got the upper hand, and the I Dynasty was founded at Babylon, but Hammurabi's famous empire was probably brought to an inglorious end by the invasion of the Hittites from Cappadocia. During the turmoil that followed, Assyria, which was originally a Semitic colony from Babylon, and which Mr. King traces back to a time far earlier than the I Babylonian Dynasty, proclaimed her independence, and first Babylon, and then the "Sea-Land" were seized by the Kassites, who poured down upon them from the mountains of Elam. The king with whom Amenhotep IV of Egypt corresponded was one of the Kassite kings of the III Babylonian Dynasty, and flourished about 1380 B. C., while Menepthah was the Pharaoh of the Exodus, and his date was not much earlier than 1234 B. C.





CLAY MODEL OF SHEEP'S LIVER, WITH DIVINATION TEXT OF THE PERIOD
OF HAMMURABI (C. 2000 B. C.)

RECORDS ^{OF} THE PAST

VOL. VI



PART XI

BI-MONTHLY

NOVEMBER-DECEMBER, 1907



THE LIVER IN BABYLONIAN DIVINATION

DURING the past two years there have appeared in the scientific journals of America and Germany series of articles on liver divination, resulting from the researches of Prof. Morris Jastrow, Jr., of the University of Pennsylvania. Especially valuable and full is the statement of this subject (*Vorzeichen und Deutungslehre*), in his *Religion Babyloniens und Assyriens* (10 & 11 parts),¹ which is a rewritten and enlarged edition of his English work on the same subject—practically a new work. Instead of preparing a general review of this important publication for the readers of RECORDS OF THE PAST, it occurred to me that a presentation of the results of Professor Jastrow's researches in connection with the liver in Babylonian divination, not only as they appeared in this work, but also in other scientific publications, would be preferable; and with this end in view the following summary of a general paper on the subject read by him before different societies is offered.

There were chiefly two methods employed by the Babylonians and Assyrians for the purpose of divining the future or ascertaining the will of the great gods, the one through the observation of the position and movements of the heavenly bodies—sun, moon, planets, and stars; the other through the inspection of the sacrificial animal.

¹*Die Religion Babyloniens und Assyriens.* Von Morris Jastrow, Jr. Published by Alfred Töpelmann, Giessen.

Both methods rested on an underlying theory, the recognition of which enables us to understand the persistent hold which both methods had upon a civilization that extended over thousands of years. The theory underlying the observation of the heavens was the belief that occurrences on earth were paralleled in the heavens. Therefore, if one could read the signs of the heavens, one had the key to an understanding of what was happening and what was going to happen on earth.

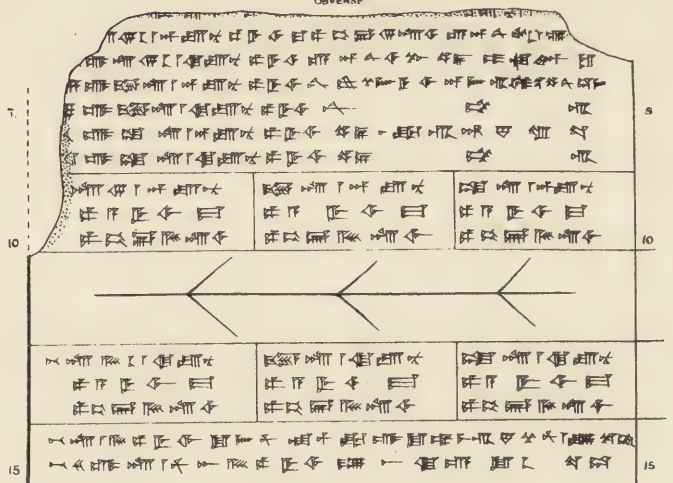
In the case of the inspection of the sacrificial animal, it may now be regarded as certain that the one organ which the Babylonian augurs observed was the liver, and that on the theory, for which abundant evidence is now forthcoming, that the liver was the seat of the soul and of life in general. Life being, according to the universal idea in antiquity, the gift of the gods, the liver thus became the organ of divine revelation. Through it the gods, as it were, communicated their purposes to men. If one could understand what the liver of the animal set aside for being offered up to the gods indicated, one had the guarantee of having, as it were, a peep into the workshop of the divine.

Starting with this theory, Professor Jastrow has shown that liver divination, or hepatoscopy, developed in the course of time into an elaborate science with more or less definitely defined sets of rules and governed by principles which, though they would not be regarded as scientific in our age, were yet followed with that consistency which marks the application of scientific principles in modern branches of investigation. The two main principles underlying the system of liver divination may be said to be, first, association of ideas, and second, association of words.

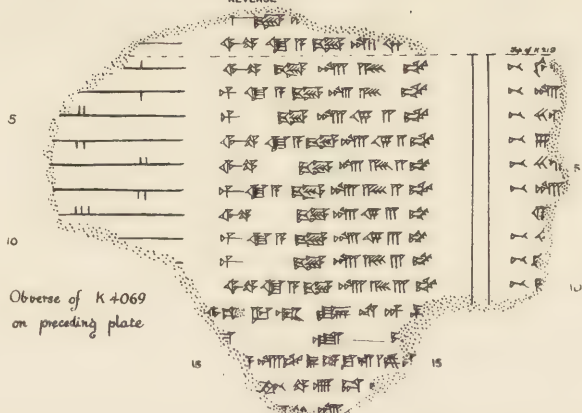
In liver divination the first step was to carefully note all the signs to be observed on the liver of the freshly slaughtered animal, generally a sheep. These signs included not merely the appearance of the various lobes of the liver, but any peculiarities to be noted in regard to the gall-bladder, the cystic and hepatic ducts, the portal vein, and more particularly the two appendixes attached to the upper or caudate lobe of the liver. Of these appendixes one which is finger-shaped and was known among the Babylonians as the "finger" of the liver, played a particularly prominent part in hepatoscopy; and it is interesting to note that among the Greeks and Romans, this same part of the liver appears with equal prominence in the system of divination which the Greeks and Romans received from the Etruscans.

Professor Jastrow illustrates this with a diagram of a sheep's liver, as showing the various parts of the liver observed by the Babylonians and Assyrians, together with the names of these parts and the cuneiform characters by means of which they were written. Great significance was also attached to the variegated markings to be found on the liver, which, due to various causes, were at times designated as holes or roads, and again fantastically compared with various kinds

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OBVERSE



REVERSE



OMEN TEXT, WITH ILLUSTRATIONS OF THE HEPATIC DUCT OF THE LIVER PREPARED FOR INSTRUCTION IN THE TEMPLE SCHOOLS OF BABYLONIA

of weapons. Pathological phenomena on the liver were also noted, and since diseases of the liver are common among sheep in a marshy district, like the Euphrates Valley, it is natural to expect that the phenomena noted by the Babylonian priests should represent largely pathological symptoms.

After all the signs and peculiarities on the liver had been noted, the second step, leading to the interpretation, had to be taken. As a guide for the priests called upon to explain the meaning of signs noted in the case of a sacrificial animal, large collections of omens were made, based in part on past experience in which the meaning of each and every omen was carefully indicated. The chief point was, of course, to determine in each case whether the omen was favorable or unfavorable.

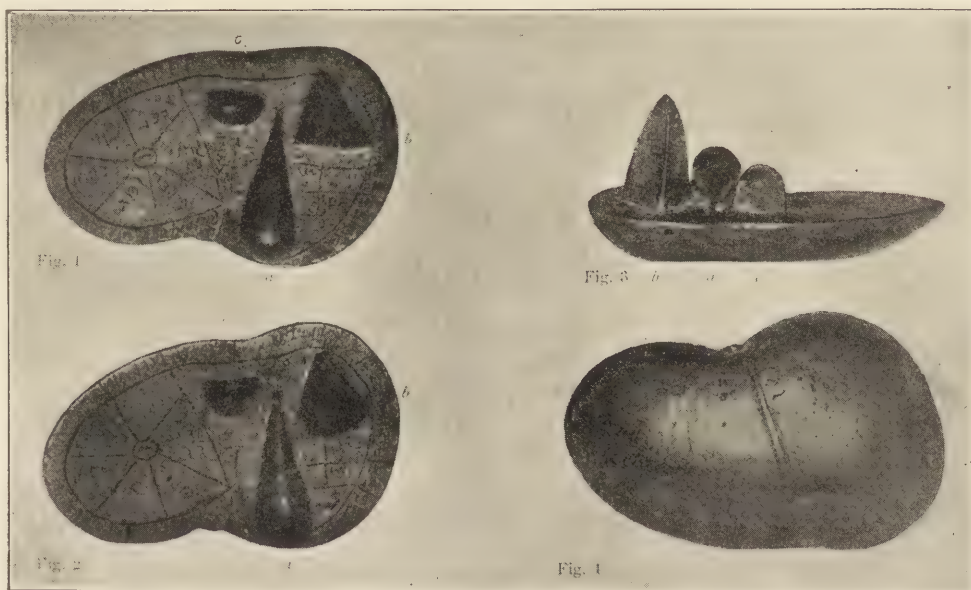
Since liver divination was resorted to largely for official purposes by the kings upon starting out on expeditions, or during the course of a military campaign, it is natural to find that the interpretation of omens bore primarily upon affairs of state, but it was a comparatively simple matter to adapt the application of the omens to any particular purpose for which the priest was consulted, whether of a public or a private character. The interpretation rested, as before indicated, chiefly on association of ideas and association of words. If, for example, the gall-bladder was swollen on the right side, it was looked upon as an indication that the king's power would be enlarged. The right side among the Babylonians as among most peoples, was the good side, and the left, the bad side. Therefore, if the gall-bladder was swollen on the left side it portended something that would be of advantage to the enemy, but not to yourself. Again, if the cystic duct was long it was interpreted as an omen that the days of the one making the inquiry would be lengthened out, or in the case of the king that he would have a long reign. Frequently, a pun or play upon the word describing the sign would form a sufficient basis for the interpretation. Thus, the word meaning to shine in Babylonian also means to be happy. Therefore, if a certain part of the liver was "brilliant" in its coloring, it was on the basis of this play interpreted as pointing to the happiness of the individual, the king, or of his armies.

Numerous illustrations taken from the omen texts are given by Professor Jastrow. He emphasizes, as a proof of the stronghold that this method of divination of the future had upon the Babylonians, the circumstance that we actually have among the tablets of the famous royal library at Nineveh, collected by King Ashurbanapal (668-626 B. C.), specimens of omens employed by Babylonian and Assyrian rulers from the days of Sargon, about 3000 B. C., down through the days of the Assyrian Empire to the last king of Babylonia, Nabonidus, who reigned from 555 B. C. until the conquest of the city of Babylon by Cyrus in 539 B. C.

Professor Jastrow also shows the great similarity between the Babylonian hepatoscopy and that which the Greeks and Romans followed. As is well known, the hepatoscopy of both the Greeks and the Romans rests upon the example of the Etruscans. A remarkable monument, found in 1877, near Piacenza, turned out to be a model of a liver in bronze, which shows the same general characteristics as a clay model of a liver with a Babylonian inscription obtained by the British Museum some years ago, and which was found near Bagdad. The Babylonian model dates from about 2000 B. C., that of Piacenza, from about the II or III century B. C.

From the Greek and Latin writers further evidence is forthcoming, which shows a similarity between the Etruscan and Babylonian methods that can hardly be accidental. Among the Etruscans, likewise, it was the liver that was the organ of revelation *par excellence*.

as Bouché-Leclercq recognized in his great work *L'Histoire de la Divination dans l'Antiquité*. The most recent investigations have shown that up to a comparatively late period, the liver alone was inspected by the Etruscans and Romans, while other parts of the animal like the lungs, heart, and intestines were only introduced into divination lore when they presented abnormal phenomena. It was the liver, however, which at all times served as the most important, and, in fact, as the essential medium for determining what the gods had in store for the state, for the ruler, or for the ordinary individual. The possibility of a direct relationship between the Babylonians and the Etruscans is thus opened up through this curious subject of hepatoscopy.



BRONZE MODEL OF LIVER FOUND NEAR PIACENZA, IN 1877. USED IN ETRUSCAN DIVINATION C. II CENTURY B. C.

Outside of the Babylonians and Etruscans, hepatoscopy is found also among people living in primitive conditions, like the natives of Borneo, who to this day on all important occasions when the future is to be divined, sacrifice a pig and inspect the liver, noting precisely the same phenomena, including the markings of the liver, that attracted the attention of the Babylonian priests. The conclusion to be drawn, therefore, is that liver divination is a primitive rite that survived among highly civilized people like the Babylonians and Etruscans, *because* it was developed into a pseudo-science through the persistent efforts and the ingenuity of the priests.

Another factor in accounting for the persistence of its stronghold is the belief upon which it rests that the liver is the seat of the soul. This belief gradually gave way to the later view, which placed the

seat of life and of the soul in the heart, while a third stage is represented in the more scientific view which assigned to the brain the most important functions connected with the consciousness of life. In Babylonian hepatoscopy we have no trace of the second stage; it rests clearly upon the earlier belief in the liver as the seat of life. In Greek and Roman divination, as already intimated, in later days, under the influence of the second stage, the heart and other organs were also introduced. While the third stage is not represented in any religious rite, it is interesting to note that it also found its expression in a pseudo-science which still survives at the present day, namely, phrenology, which in its essence is merely the application of hepatoscopy to another organ supposed to be capable of furnishing a revelation of otherwise hidden knowledge.

As an illustration of the interpretation given to the various signs noted on the liver, a translation is appended,—taken from the eleventh part of Professor Jastrow's work,—of the report given to Nabonidus, the last king of Babylonia, who ruled from 555 to 539 B. C., of the result of the inspection of the liver of a sacrificial animal—a sheep—made in connection with the king's inquiry of the gods Shamash and Adad, whether it was in accordance with the will of these deities who are the gods of divination *par excellence* that the king should, on a certain day of a certain month, begin the restoration of Sin's temple at Harran. No less than 17 signs are noted, together with their interpretations as follows:

"If the left side of the gall-bladder is tight, through thee the death of the enemy.

"If the *processus pyramidalis* (i. e., the finger-shaped appendix at one end of the caudate lobe), is well preserved, things will go well with the sacrificer—he will enjoy a long life.

If a lymphatic gland is to the left of the *processus pyramidalis* and the *processus papillaris* (i. e., the smaller appendix at the other end of the caudate lobe) is large (?)—my safety against the enemy.

If the *processus papillaris* is wide—joy of heart.

"If there is a 'club' (i. e., a marking on the liver fantastically compared to a weapon of some kind) to the left of the *processus papillaris*—my army will do violence to the enemy's host.

"If in front of the bag (of the gall-bladder), there are two pronounced 'clubs' to the right, known as 'mighty storm' (i. e., a double marking resembling the weapon of one of the gods that bore the name of 'Mighty Storm'), then those who formerly hated will love, in place of hostility there will be reconciliation, the gods Sin and Shamash will protect my army and subdue the enemy, the gods formerly angered will be favorably disposed.

If the points of the gall-bladder are turned to the right—appointment (i. e., the appointment to an office may be safely made).

"If at the head of the cystic duct there is a 'club' and the cystic duct is tight, if, furthermore, the bag of the gall-bladder is smaller

on the right side and there is an incision between the lower and the upper points of the *processus pyramidalis*, and if the upper surface (of the *processus pyramidalis*) moves to and fro, the victory of my army will be complete, the suitor will gain his cause against his opponents.

If the upper part of the back of the liver protrudes on the right side, and if a liver-fluke has pierced the middle—the protector of the fame of my army will overthrow the strength of the enemy's army.

"If the upper part (of the *processus pyramidalis*) moves to and fro, and if the lower edge rides over the depression (i. e., the groove under the *processus pyramidalis*), and if the upper point of the liver (i. e., of the *processus pyramidalis*), is enlarged on the right side—joy of my army.



OMEN TEXT, WITH ILLUSTRATION OF VARIOUS FORMS OF THE FINGER-SHAPED APPENDIX OF THE CAUDATE LOBE

"If there is a lymphatic gland to the right of the liver-mass—salvation."

It will be observed that the interpretations do not bear on the inquiry at all, but that was not essential. The important point was to ascertain whether a certain sign was a favorable or an unfavorable one. In order to determine this the scribes of Nabonidus had recourse to the extensive collections of omens and their interpretation gathered on clay tablets for the temple and school archives, partly on the basis of actual experience, and partly based on the application of the principles underlying the Babylonian system of hepatoscopy to hypothetical cases. What Nabonidus lays before us, therefore, are extracts from these collections in which the signs observed correspond to those noted on the occasion specified in the inscription, while the interpretations which belong to totally different inquiries and represent

the answer to such inquiries made at one time or the other, are added as an indication merely, whether the sign is favorable or unfavorable. All the signs noted are, in fact, favorable, and hence the conclusion to be drawn from the liver inspection was that the gods approved of the day set aside by the king for beginning the restoration of the temple in question.

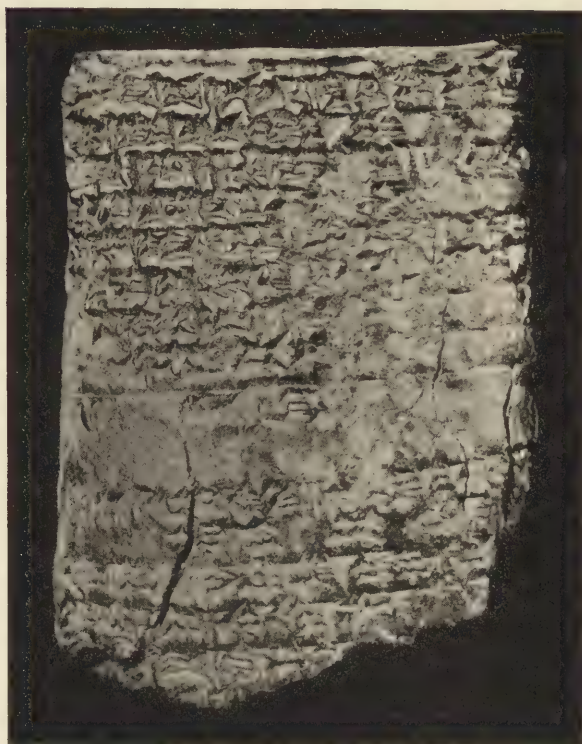
The general principles governing the interpretation of the signs noted can be seen from this example. The right side is the lucky one, the left the unlucky one. A firmly fastened gall-bladder points to a strong grip of something, since the left side represents the enemy. The circumstance that the gall-bladder is tight on the left side prognosticates that the enemy's army will be firmly clutched by the king's army. A well-preserved part of the liver points to well-being, and similarly, the broad surface of such a subdivision. Markings or "clubs," on the right side, are favorable signs pointing to success in war or to the general good will of the gods, and so forth.

On all important occasions, recourse was had to "liver" divination in order to assure one's self of the approval of the gods for any undertaking whatsoever, or in order to ascertain what the outcome of any event would be—military expedition, sickness, journey, and the like, as the case might be.

In the official archives of Babylonian and Assyrian rulers the reports of the priests were deposited and we are fortunate in possessing a considerable number of such reports. One of these dating from the Cassite period, was found at Nippur by the expedition of the University of Pennsylvania, the text of which I published in my *Documents from the Temple Archives of Nippur*, dated in the reigns of the Cassite Rulers (Philadelphia, 1906. Plate 3, No. 4). It represents a report sent to King Burnaburiash II (c. 1350 B. C.), in reply to an inquiry whether a certain "pious act"—perhaps the building of a sanctuary—in honor of Marduk, who had been angry, but who was now reconciled, would be acceptable to the god. The report begins with the announcement of the decision. Professor Jastrow's researches have enabled him to interpret this difficult text, a translation of which follows:

"The pious act of Marduk, as a rite for the appeased god—let him carry it out." There follows the justification for this favorable decision on the basis of the signs observed on the liver of the sacrificial sheep, as follows:

"A 'place' is there (i. e., there is a marking on the liver known as a 'place'), the hepatic duct is destroyed the 'good mouth' (the designation of the junction between the cystic duct and the common bile duct), is normal, the portal vein is normal, the lymphatic gland is there, the gall-bladder is tight on the right side, the right side of the *processus pyramidalis* is torn away, and the split at the rent made, is deflected above and below, the upper surface (*sc.* of the *proces-*



AN OFFICIAL'S REPORT OF THE EXAMINATION OF A SHEEP'S LIVER

sus pyramidalis), rides over the depression (below the *processus pyramidalis*), the base of the caudate lobe is sunk a liver-fluke is completely severed. Twelve signs of the sheep let him examine and send to Dur-Kuri-Galzu."

Dur-Kuri-Galzu—presumably near Nippur—is the official residence of the king to which the report was sent.

There are a number of signs which are clearly unfavorable, such as the "destroyed" hepatic duct, the "torn" *processus pyramidalis*, and the like. In such cases a second sheep was sacrificed and another inspection made. The second inspection is added and this apparently turned out favorably, and the report ends with the date. "Month Iyyar (i. e., 3d month), 12th day, 11th year of Burnaburiash in Nippur."

Professor Jastrow's researches are not without their bearings on the Old Testament. That the ancient Hebrews also at one time believed the liver to be the seat of the soul follows from certain passages in the Old Testament, upon which we can not dwell in detail here. They must also have known of the Babylonian rite which played so prominent a part in the cult as to give one the impression that the main purpose of sacrifice among Babylonians and Assyrians was to ascertain the will of the gods through the inspection of the livers of the animals slaughtered.

The Pentateuchal regulations are full of protests against the customs of the nations by which the Hebrews were surrounded—protests against sorcery and magic, against eating meat from the living animal, against taking interest, against marrying near relatives, and more the like. It would appear that these codes also contain an implied protest against Babylonian divination through the liver. In no less than 10 passages in the Pentateuch (Ex. xix: 13, 22; Lev., iii:4, 10, 15; vii:4; viii:16, 25; ix:10, 19), the ordinance is found providing for the burning of part of the liver of a sacrificial sheep, which is ordinarily translated "the caul above the liver." This part is to be burned in the case of sin offerings and of guilt offerings, as well as of peace offerings, although the rest of the liver itself is permitted to be eaten. Now, a number of years ago, Prof. George F. Moore, of Harvard University, showed that the Hebrew term, literally "that which hangs over the liver" referred to the finger-shaped appendix of the caudate lobe. The Greek translation—known as the Septuagint—so renders it, as do the ancient Jewish authorities who describe the appendix as the "finger" of the liver—the very same term which occurs in Babylonian hepatoscopy.

To the question, therefore, why this piece of the caudate lobe should be burned, Professor Jastrow suggests as the answer that it is intended as a symbolical protest against the use of the liver for divination purposes. The Hebrew idea of sacrifice is that of tribute to Jehovah, but since the rite of sacrifice is not peculiar to the Hebrews, being, in fact, widespread in antiquity, the thought of emphasizing the Hebrew conception against other conceptions that were current would naturally be present in the minds of the Hebrew lawgivers and compilers of the codes.

Had these lawgivers desired to be perfectly consistent they would have ordered the entire liver to be burnt. They contented themselves, however, with the order to burn that portion of it which played so prominent a part in hepatoscopy that among the Greeks it was called "*the lobe*" *par excellence*, and among the Romans, "the head of the liver," while in Babylonian divination it is likewise one of the most prominent, if not indeed *the* most prominent sign noted. Through the burning of this part of the liver, therefore, the warning was brought home to the people in connection with sacrifices of animals, not to divert the rite into a means of divination.

There are other phases of this interesting subject that could be touched upon, such as the bearings on the early history of animal anatomy, but what has been brought forward here will suffice to illustrate the wide scope of Professor Jastrow's researches and their importance in not only throwing a new light on a wide series of ancient religious customs, but in furnishing an understanding of hundreds of cuneiform texts hitherto obscure.

ALBERT T. CLAY.

University of Pennsylvania.

ADOLF FURTWÄNGLER

ADOLF FURTWÄNGLER, the best-known classical archaeologist of the day, died in Greece suddenly on October 12. He was born in Freiburg, Germany, on June 30, 1853. After graduating from Munich University in 1876, he immediately began his remarkable career as classical archaeologist by an appointment to the Imperial German Institute, first in Italy, and then in Greece. At the excavations at Olympia he was present, and in 1878 he was actually in charge of this tremendous enterprise. In 1879 he was called to the University of Bonn, and in the next year to the Royal Museum in Berlin, where he left a few years later to accept sole charge of the Glyptothek in Munich, and to fill the professorship of classical archaeology. In 1901, without relinquishing his other positions, he began excavations in Aigina and Orchomenos.

Professor Furtwängler's first publication, *Pliny and His Sources Concerning Ancient Art*, appeared in 1877. Since then hardly a year has passed without books or articles issuing from his inspiring pen. The best known are: *Bronzes from Olympia* (1880), *The Gold Finds of Vettersfelde* (1883), *The Vases in the Antiquarium of the Royal Museum in Berlin* (1885), *The Collection Sabouroff*, a monumental publication, 1883-1887; *Mycenaean Vases* (1886), *Olympia, Results of the Excavations*, Vol. IV (1890); *Masterpieces of Greek Sculpture* (1893), *Copying Statues in Antiquity* (1896), *Catalogue of Vases in the Old Pinakothek, Munich* (1896); *Intermezzi, and Historical Studies* (1896), *Art Gems in the Berlin Museum* (1896), *Collection Sornzée* (1897), *Original Antiquities in Venice* (1898), *New Monuments of Ancient Art* (1900), *Ancient Gems, and History of Gem-cutting in Antiquity*, an epoch-making publication of astonishing learning and wisdom (1900); *Catalogue of the Glyptothek, Munich* (1900), and more recently his publications of the excavations in Greece and Orchomenos. This list takes no account of his contributions to the publications of learned societies.

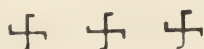
Adolf Furtwängler was an inspiring teacher. His wonderful mind grasped the minutest details and his equally remarkable memory stored them for ready use, but he had breadth of vision—discerned essentials. He knew his subject as no other. He was at home in every museum, in Boston as well as St. Petersburg; in Rome and Athens and Madrid, and all the public and private galleries of England. He knew the literature of his subject in its many ramifications, but his knowledge was essentially not book knowledge. He was kind and helpful to the beginner, but almost cruelly impatient of the mistakes of older men. He was, therefore, often attacked, and while he entered

manfully into the feuds forced upon him, he generally bore himself with dignity.

His untiring activity, his spirited writings, his eager and persistent search for more light on ancient art, his enthusiastic lectures, his versatility, and even at times his mistaken guesses as to the identity of statues, brought life into a study which was threatened with the death of self-sufficient acceptance of traditions. Until Furtwängler came one did not know how much there was still to learn of ancient art.

His admirers, and they are legion, believe that there never was and never can be a man of such learning in a special field, and of such inspiring personality as Adolf Furtwängler. And even his professional opponents, while disputing this or that theory, call him a great man. Europe and America have suffered a great loss in his death. Those who knew him and loved him are comforted at the thought that death claimed him in Greece, eager to the last to spread light over the scattered remains of antiquity. By his death, as well as by his whole life, he taught the nations to love and revere the memories of the glorious past of Greece and Rome.

EDMUND VON MACH.



MOUND-BUILDERS OF THE MISSISSIPPI VALLEY

WHEN we make a comparison of the burial mounds in the Ohio and Mississippi Valleys with those found in the Oriental countries we are led to the conclusion that the custom of burial of the dead and rearing a mound over them has prevailed for many centuries, and been quite universal on both continents, and that it has been practised by the Indians who lived in this immediate neighborhood to within comparatively recent years. As to the origin of the native tribes and peoples of America, as they were found at what we call the discovery of America, it was plainly to be seen that they did not all spring from the same primeval stock, but that different colonies reached the New Continent at various times from different parts of the earth, and the influx of human wanderers added to those already here and intermingled with them. This we can judge from the diversity of language, different degrees or kinds of civilizations, and above all, the mounds and other architectural structures they have left to tell us of the different races that have occupied this continent in bygone times. Whence they originally came is hard to say with any degree of certainty. One of the natural routes on the side of the Pacific is Behring Strait, only about 20 miles across, we can easily see how even primitive man could have been conducted or

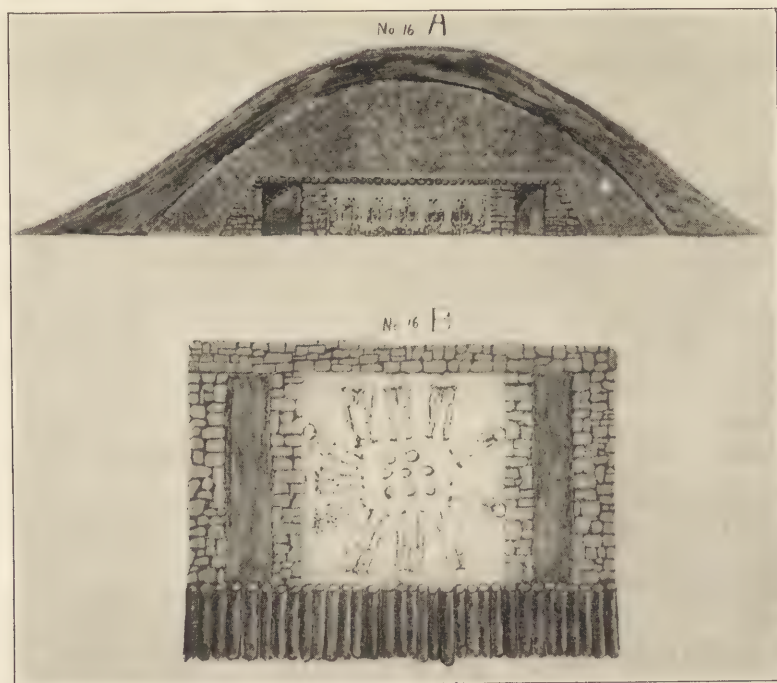


POMO COUNCIL CHAMBER, CALIFORNIA

cast across so short a distance, and it is more than probable that Behring Strait has been a channel of frequent migration from one continent to the other. The Japanese claim early settlement along the coast of Southern California, Mexico, and Central America, and no doubt there were many different and successive shoals of invaders. Not having any more direct record of the many invasions, which no doubt have occurred from time to time from this source, let us consider such evidences as may be at hand and make a comparison of similar conditions that have existed in times gone by, and as we find them to exist on both sides of the Pacific Ocean, and see if we can find a connection with or a remote relationship between the Orientals; Chinese, or Japanese, the Chukchee of Behring Sea, and still farther north, with those on this side of Behring Strait, Alaska, and the North American Indian. Let us trace them down the American side along the Pacific coast to Mexico and Central America, then across the narrow strip of land to the Gulf of Mexico to the mouth of the Mississippi River, then up that stream as far as St. Anthony's Falls, as well as up the Ohio River as far as Pittsburg.

I have in mind many things that point to similarity of ancient customs, particularly in the ceremony and burial of their dead, and the building of mounds over them, so very many of which are found along both sides of the streams, and on the high cliffs all along the Mississippi and Ohio Valleys. A recent writer has stated that he had discovered among the Chukchee of Asia, near Behring Sea and still farther north, a striking resemblance in size and features, as well as in language and customs to the Alaska and North American Indians. That their hieroglyphics, their totems, and many other things were very similar, and that he felt very sure that a relationship could be traced.

Commencing with the Orientals for comparison, we quote from an article on an *Ancient Manchurian Tomb at Mukden*. "In this province of the Chinese empire all graves are alike, the actual final resting place of an emperor not differing essentially from that of the humble coolie. All are mounds of earth, the difference in height indicating the difference in quality. All the grandeur of the imperial tombs at Mukden is expended on the entrances and outer courts. This grave of Chin is but a mound of lime-white earth, surmounted by a tree to mark it." Compare this Mound of Mukden, with the mound in Adams County, Ohio, and see the striking similarity; also note that the same custom and ideas prevailed among the Indians



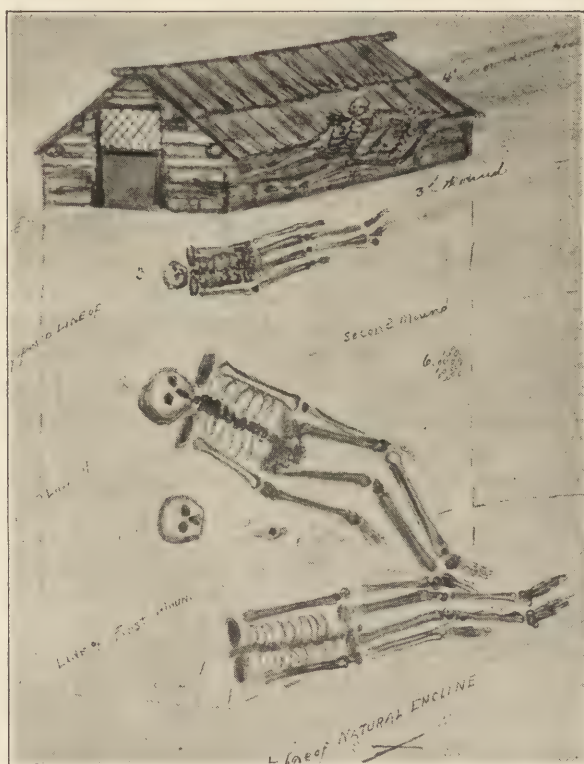
SECTION OF MOUND NO. 16, OF EAST DUBUQUE, ILL.

of this immediate neighborhood concerning the building of the mounds, that the higher they built the mound the farther they carried the earth or other material, and the more laborious it was to construct the same, the higher they considered the respect paid to the dead. [The tombs of the Ming dynasty, northwest of Pekin, show similar mounds of earth over the actual tomb, while the approach to the mound is very elaborate. See RECORDS OF THE PAST, Vol I, *The Ming Tombs*, pp. 99-107.—EDITOR.]

Mounds had also another significance; they were sometimes built and used as *Subterranean Council Chambers*. The Pomo tribe build a strange looking mound, the remarkable thing about which is that it

is hollow, and contains a large room, the floor of which is many feet below the level of the ground. The room is a subterranean Council Chamber in which the wise men and warriors of the Pomo tribe in California hold their *pow wows* to decide important questions relating to the public warfare. There is a square hole or scuttle, through which access to the interior of the mound is obtained, a ladder being used for descending.

In Mound No. 16, excavated on the top of the high hills here at East Dubuque, Ill., was found such a subterranean chamber built with stone walls and timbered, in which were seated around in a circle, 11



SECTION OF THE GRAVE OF DUBUQUE AND PEOSTA, THE
CHIEF OF THE FOXES

skeletons facing each other, with their feet toward the center, 8 earthen pots being deposited there.

In excavating for the foundation for the monument erected over the grave of Julien Dubuque, the first white settler on the bank of the river here, and pioneer lead miner of the West, in the erection of which the writer had an important part, we found this mound practically what might be termed 3 stories high, that is to say, there were 3 burials, at different times, the mound having been built higher each time, and finally when the United States Government first allowed the white settlers to occupy the ground on this side of the river, about the

year 1832, there was found a hut built over all this with a stone wall and a roof. In this were seated 2 more skeletons, facing toward the east.

Julien Dubuque, in honor of whom this monument [see frontispiece, August number, 1906, RECORDS OF THE PAST] was erected on the exact spot where he was buried by the Indians, was a French Canadian, who settled here in 1788. He lived with and was adopted by the Muskwakies of the Foxes at the "Little Fox Village," on the west bank of the Mississippi River, just below the mouth of the Catfish Creek. He was married to the chief's daughter, named Potosa; the chief's name was Peosta. He and Julien Dubuque became lifelong friends. When Julien Dubuque died, March 24, 1810, he was buried Indian fashion by the Muskwakies, and a mound built over him. The chief requested to be buried on the same mound with Julien Dubuque; his death followed several years later, about the year 1818. At his funeral he was placed upon the first-named mound in a sitting position and the mound built that much higher. Later 2 more followed in the same way, Potosa, the squaw wife of Julien Dubuque, being on the south side of the mound and somewhat apart from the rest. In the section given in the accompanying view; No. 1, is the skeleton of Julien Dubuque (except the skull), lying full length, facing toward the west, about 8 ft. below and almost under the north wall; No. 2, the Chief Peosta, about $2\frac{1}{2}$ ft. farther south and about $2\frac{1}{2}$ ft. higher up in a semi-sitting position; No. $1\frac{1}{2}$, the skull of Julien Dubuque, had been taken away from the rest of the skeleton and placed near the head of the chief, probably at the time of the chief's funeral; No. 3 is the skeleton of the squaw Potosa; No. 4 is the flat top catlinite pipe, a similar pattern to those used by the Alaska and Pacific Coast Indians, and by those around Behring Sea. At number 5 are 11 small, fine, sugar-flint arrow-points, all exactly alike.

This reminds me of an article I recently have seen in one of the papers, in which the writer said he is an Indian and a scholar, but he says, "the Indians never made the flint arrow and the spear-heads;" he says, "the Indians found them here." It does not seem clear to me that the Chief Peosta could have found 11 such beautiful little flint points all exactly alike, but I rather incline to the idea that they were made for him as something extraordinarily nice and befitting his rank, and that they were made especially for him and during his lifetime. Of course, I can realize that since the Indians were able to get steel points at the blacksmith's they dropped the manufacture of the more laboriously made and imperfect flint points—just about the same time that our forefathers dropped the flint locks on their guns for the more improved firearms.

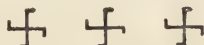
I have drawn attention before to their oriental custom of ancestral worship, the things belonging to their dead were not to be used by any other, they were held sacred as belonging to the dead; and this subject was not to be talked about to any foreigner, or perhaps

not even among themselves. At any rate there have been regular workshops, so to speak, found, where bushels of flint chips could be picked up that were flakes from the making of these points, and from their geological location, it has been determined that they were of comparatively recent deposit.

No. 6 is about a half a cigar box full of such chips, of which tradition informs us, "the Indians made yearly visits to this grave, and never failed to drop some small stones into it." I have these chips just as they were found in the grave and as indicated in the sketch.

RICHARD HERRMANN.

Dubuque, Iowa.



HUNTINGTON'S EXPLORATIONS IN CENTRAL ASIA*

MR. ELLSWORTH HUNTINGTON, in his recent book, under the title of *The Pulse of Asia*, gives the results, both geographical and archæological, of his two expeditions to that fascinating region of Central Asia bordering the "Roof of the World." It is the author's intention to present the geography of the region in its broadest sense, including not only descriptions of the physical aspects of the country, of its resources, geology, people, and their industries, but also to show, in so far as possible, the relation which the physical features of the region bear to the inhabitants, their mode of life, customs, and the direct and indirect effect which these conditions of environment have had in determining the present civilization of these various tribes and peoples.

For a discussion of geography from this point of view, there is no better area in the world than that traversed by Mr. Huntington, for here everything goes by extremes from depressions below sea-level to the highest plateaus and mountain peaks of the world, from absolute desert to well-watered mountain slopes. There is, further, abundant evidence of gradual climatic changes which have taken place, and thus increased the range of observations possible in tracing the effect of physical environment on peoples and their civilization.

We have space here to consider only a few of the many interesting historical and archæological observations recorded in this volume. One striking instance of the climatic changes which have been taking place was observed at Choka, a town situated at the base of the mountains southeast of Khotan. This was once the site of a moderate-sized city, which is now insignificant.

According to the natives, the water supply of the ruins came from the Choka Brook, flowing under the ground in the stone troughs of which pieces have been

*This article is composed of excerpts and condensed statements from Mr. Huntington's book on *The Pulse of Asia*.—*The Pulse of Asia*. A Journey in Central Asia Illustrating the Geographic Basis of History, by Ellsworth Huntington. Illustrated. Houghton, Mifflin and Company. 1907.

found. To-day the brook is too small to supply so large a town. The water supply can not have come from the Karatash River. To bring it to the ruins, 250 ft. above the stream, would require a winding aqueduct 10 miles long, cut much of the way in the face of almost perpendicular cliffs of red sandstone or of gravel, and carried across the mouth of at least one large tributary gorge. Such a piece of work would be out of all proportion to the size of the town, and would be an engineering feat utterly beyond anything, old or new, known to exist in Central Asia. Moreover, if such an aqueduct had ever existed, some traces of it would surely remain, and would be known to the natives. To bring water from the Choka Brook, on the other hand, would be an easy matter. The bed of the brook rises rapidly up the valley; the cliffs soon die out; and within 3 miles of the ruins, water could be led out of the brook and brought to the ruins by means of a simple ditch. The difficulty is that at present the Choka Brook suffices for only 12 families of peasants. A little water runs to waste in summer when the snow is melting on the Tikelik plateau, but in spring every drop is needed; and in winter the brook is said to dry up completely except for a few small springs.

Since the water supply of ancient Choka can not have come from the Karatash River, only two alternatives remain: either the Choka Brook was once larger than it now is; or by careful management a little stream, which to-day supports a dozen families of peasants, was made to support 50 times as many families of townspeople, who, of course, would require much less water per individual. The second alternative seems incredible, especially when the scarcity of water in winter is considered, but it is impossible to speak positively. It is scarcely probable that with the Chira, Genju, and Pisha Rivers close at hand, any government would have chosen to build the chief walled town of the district on a little brook, which, under the best circumstances, could provide barely enough water for drinking purposes. There is no ground for supposing that part of the brook has been diverted, or that it has grown smaller for any reason other than change of climate. If the climate was somewhat moister, and the brook larger, all difficulty disappears.

Mr. Huntington further notes as evidence of the change of climate that the present scanty population, now barely able to make a living in the surrounding region, must have been much larger in the past to support a city of the size of ancient Choka, which evidently had from 3,000 to 5,000 inhabitants. For, from its location, it could have been nothing more than an agricultural distributing station. It is probable that formerly a better supply of rain made pasture more abundant and thus there was supported a large "Kalmuck," or Mongol nomad population, of which there is a generally accepted tradition among the natives.

Before leaving this place Mr. Huntington made a detour eastward to Imamla, concerning which he says:

Imamla is the seat of a famous shrine, and I was anxious to visit it because I had heard that the sheikhs had a "tezgireh," or chronicle, relating the history of Choka. I went to the house of the chief shiekh, a most unpriestly young man, with a merry, boyish air, and two or three wives. As befitted so religious a house, the call to prayer, or some one of the 5 daily prayers, seemed to be in progress most of the time. Even the beggars attached to the shrine would pray for 5 minutes if one gave them a penny. Whenever one of the other 5 sheikhs came to call, he said, "Salaam," and at once opened his hands in prayer; and of course there were long prayers at meals. One might have thought himself in a monastery, if women had not passed through the courtyard now and again.



RUINS OF THE LAMASERY AT DANDAN-UILIK

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

The chronicle, which was owned by the sheikh, is said to have been written by one of the scribes of Yusup Khadir Khan Khazi, king of Kashgar, in 1000 A. D., at the time of the death of the Four "Imams," or "Saints," from whom the shrine takes its name. The Imams, so the chronicle says, came with the Mohammedan invaders to convert Khotan. As the Khotani "infidels" clung to the Buddhist faith, the four saints, by power of prayer, destroyed the city, then called Khal-khalimachin. Thereupon 12,000 people became Mahommedans, and built the new city of Khotan. Of the remaining pagan inhabitants, 17,000, with Nuktereshid-Chuktereshid, their king, came to Choka, and built the city, whose ruins I discovered. Forty years later, the Imams followed them, and naturally were refused admission. A man of Choka, however, who had secretly become a Mohammedan, came out by stealth, and led them to the water supply of the city. As the water flowed in an underground conduit, its exact course was not evident. The Imams prayed for guidance. At once a tree sprouted, grew to maturity, flowered, and produced fruit, a delicate red crab-apple, peculiar to the terrace villages. Knowing that the tree must grow from the water, they dug a hole, and found the conduit, and dropped into it a red crab-apple. The apple swirled round and round in the swift stream, and finally was sucked downward. Thereupon the water dried up. The city was forthwith abandoned, the people moving on eastward through Sai-Bagh and Nura to Imamla on the Ak-Sai River. Thither, in course of time, the zealous Imams followed them for the final combat. The pagan king was encamped higher up the Ak-Sai than were the few Mohammedans, and the water which came to the latter was polluted. The Imams dispatched a pious subordinate, whose fervent prayer caused the Ak-Sai to be diverted eastward into the Kara Su, where part of it still flows. This did not quench the ardor of the pagans, however, for soon after, when the Mohammedans were at their prayers, the host of Nuktereshid fell upon them and killed them all, including the Imams. Forty, however, came to life again, and returned to Kashgar. They persuaded the king of that country to send some families, who settled Imamla, Sai-Bagh, and Nura, which, till then, had been inhabited only by nomads. Nuktereshid and his people moved on southeastward to Polo, which is said to have been an important post, "because it lies on the Kalmuck road from Yarkand to Cherchen." There they were finally conquered by the Mohammedans.

The whole story is full of fantastic miracles and impossibilities, but the main

facts are historically accurate. The miracles—such, for instance, as the diversion of the Ak-Sai—are chiefly distorted explanations of real facts. The dates are open to question, for while the chronicle gives 1000 A. D. as the time when Nuktereshid ruled, Bellew gives 1095 A. D. Apparently, Choka was a provincial town in a district inhabited by nomads, and rose to importance only during the brief space when it became the capital of the Buddhist kings, whom the Mohammedans expelled from Khotan about 1000 A. D. The abandonment of the town was traditionally a withdrawal of the people without fighting because their water supply failed. Of course, the water supply may have been diverted by an enemy, as is said to have been done in the case of the Ak-Sai; but that does not explain where the water went, or why a town was ever founded with so diminutive a water supply as that now available, unless the climate were different.

Near Chira, Mr. Huntington began special investigations on the "climate of antiquity," which he considers in chapter VIII, under the title, *Sand-buried Ruins of Chira*. Concerning these, he says, in part:

The best point for beginning my investigations seemed to be a group of ruins, Uzun-Tetti and others, which lie in the zone of vegetation a few miles north and east of Chira, and another group, Dandan-Uilik and Rawak, which lie far out in the sandy Takla-Makan desert, 50 or 60 miles north of Chira. Stein, the only archaeologist who has visited the region, describes Dandan-Uilik, the chief of the ruins, as having been a large town with several religious establishments, either Buddhist lamaseries or temples. It was situated in the midst of an oasis, called Li-sieh, or Litsa. A considerable agricultural population was settled round about, as is shown by numerous remains of ancient irrigation works. Rawak, the more northerly town of the Litsa oasis, was probably abandoned about 300 A. D., while Dandan-Uilik itself, to judge from the evidence of manuscripts found in the houses, does not appear to have been finally deserted until a little before 800 A. D. "But," as Stein says, "the striking preponderance of religious buildings * * * suggests the possibility that these local shrines and their small monastic establishments continued to be kept up and visited, perhaps as pilgrimage places, for some time after the rest of the settlement had been abandoned. The condition in which Mohammedan Ziarets [shrines] are now often found beyond the present cultivated area of oasis would furnish an exact parallel." Stein concludes that "the lands of Dandan-Uilik were irrigated from an extension of the canals which, down to a much later date, brought the water of the streams of the Chira, Domoko [properly Dumuka], and Gulakhma to the desert area due south of the ruins * * * [where] the debris-covered site of Uzun-tati * * * can be proved by unquestionable evidence to have been occupied for at least 5 centuries longer. * * * A number of historical as well as topographical observations * * * point to the conclusion that the successive abandonment of both Dandan-Uilik and Uzun-tati was due to the same cause, the difficulty of maintaining effective irrigation for these outlying settlements." Hedin, on the other hand, believes that this can not be true for Dandan-Uilik and Rawak, of which he was the discoverer; they must have received water from the Keriya River, which now flows 26 miles east of the ruins, but in ancient times, so he supposes, was diverted to the west. * * * My investigations confirmed Stein's conclusion, and showed that the water supply throughout the whole region was formerly more abundant than now, and hence that in ancient times the climate must have been different. An account of my journey into the desert will show the reasons for this conclusion. * * *

We spent the first 7 days in circling about in the zone of vegetation. Within a few miles of Dumuka, along the north and south line of a former course of the Dumuka or Ak-Sai River, I discovered the waterless, sand-buried sites of 4 small villages, evidently the ancient Buddhist equivalent of modern Dumuka. The southern site, called by my guide Derevzeh Dung, is unimportant. * * * At



RUINS OF THE "STUPA" AT NIYA RIVER SITE

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

the next site, Kuk Jigdeh (Green Eleagnus Tree), as well as at Kushkusteh Dung, the one farthest to the north, we found some little clay heads of Buddha and some plaques with typical Buddhist figures, which show that the sites antedated the Mohammedan conquest in the X century. The other site, Khadaluk, appears to have been the center of the old town. In two places we found abundant votive tablets with heads of Buddha, and many fragments of painted plaster and gilded stucco, evidently the remnants of an old lamasery or temple. Apparently here, as at Dandan-Uilik, the most permanent structures, and probably the ones last to be abandoned, were of a religious character. We also found several Chinese coins, dating from early in our era, some fragments of paper bearing records in Brahmi script, and two pieces of wood covered with the characteristic Kharosthi script of the first three centuries of the Christian era. One of these [B, in the accompanying cut], bears on the reverse side paintings of a camel and other objects. Evidently, the 4 sites just described are parts of an agricultural district at least 4 or 5 miles long, and quite as large as modern Dumuka. The final abandonment of the ruins certainly took place before the Mohammedan conquest in 1000 A. D., and perhaps earlier.

About 8 miles north-northwest of Khadaluk, at Payet-Begning-Ilesi or Tetti-Gerim, I discovered another little site, with remains of tamarisk-walled houses, abundant crude pottery, a few beads, and a bit of blue glass, but with nothing by which to date it. The general appearance, the aggregation of the houses, and the condition of the surrounding vegetation, suggest that the site is at least as old as Khadaluk.

Farther west, the ruins of Uzun, Tetti, and Ulugh Mazar proved to be more extensive than appears from previous explorations. From the shrine of Lachinata, for 5 miles to the northwest to Ulugh Mazar, and thence 6 miles farther to the northeast, I found abundant pottery. There were also other relics of human occupation, including the traces of a mud-house, the straw of an old threshing-floor, and even the characteristic pattern of the ditches of ancient melon-fields. The en-



RUINS OF THE MIL-I-KASIMABAD, NEAR ZAHIDAN, AT SEYISTAN

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

tire appearance was such as to suggest that the site was not abandoned till a later date than Khadaluk. The pottery also pointed to the same conclusion, for, unlike that of more ancient sites, it was wheel made, the ornamental designs were drawn in curves with a stick of several points, and one bit had a green glaze. This conclusion is confirmed by the historic records of the Mohammedan conquest, and by some coins of the XII and XIII centuries, which Stein found at Ulugh Mazar. It appears that at the time of the Mohammedan conquest, and later, not only was Chira inhabited much as it is to-day, as is proved by early Mohammedan records, but that here, 12 miles to the north, along the line where the Chira river would flow if it were large enough, an equally large area, about 6 miles by 8 in size, was also densely populated. * * *

Thus it appears that about 1000 A. D., not only was the total population supported by the rivers larger than it now is, but the streams flowed through the modern villages, where their water is at present entirely consumed, and reached places like Ulugh Mazar, 10 or 15 miles farther north. This could happen only if the rivers were decidedly and permanently larger than now. There has been no diversion of the upper waters of the rivers except in the insignificant and easily preventable case of a small part of the Ak-Sai or Dumuka River; and there is not the slightest evidence that the irrigation system of the past was better than that of to-day. The true cause of the diminution of the water supply appears to be that the climate has changed.

It is proverbially unsafe to place much reliance upon legends. Students, however, are more and more recognizing that legendary stories contain a kernel of truth, which can be detected by comparing scientific facts with those details of the stories which would be least likely to be the product of imagination. Therefore, the local legend of the destruction of Kenan or Ulugh Mazar is worth recording. According to Ismail Beg, and the people of Malakalagan, a holy Mohammedan priest came to Kenan one day, long after the driving out of the former Buddhist inhabitants, and found no one at home. Men, women, and children had all gone out to work on the canals. The holy man was hungry and tired. Being accustomed to live on the fat of the land, he was irritated at finding the houses shut and

empty. He offered a prayer, which can hardly be supposed to have been pious, and began to turn a hand-mill standing in a courtyard, whereupon sand rained down from heaven. It ceased to fall when the troubled villagers, having seen it from afar, came hastening home and supplied the good man's wants. Nevertheless, the visitation proved fatal. From that time onward the water supply decreased, until at last the people of both Lachinata and Kenan abandoned their houses and fields, and moved to old Dumuka and Ponak, which had remained uninhabited since the Buddhist inhabitants fled northward across the desert. A similar legend is found in many other places in Turkestan, apparently because similar events occurred. The rain of sand is often spoken of as if it were the cause of the abandonment of ancient towns. I do not think so, however, because extended observation has convinced me that sand rarely encroaches upon a region until after a decrease in the water supply has caused the death of vegetation. In the Kenan legend it is distinctly stated that the amount of water diminished. The villagers said to me, "You see, what happened to Kenan long ago was like what happened to Dumuka in the days of our fathers. The river dried up."

One other quotation from Mr. Huntington's book will have to suffice to show the evidence of climatic change and its wide effect on the history and present civilization of Central Asia. In the arid Lop basin, the underground water is so saline that even to-day many tracts cultivated to the present time are being given up as unsuitable for raising the scanty vegetation needed for the flocks of a few villagers. Concerning the region near Niya, Mr. Huntington states:

In ancient times conditions were very different. Fifty-seven miles due north of Niya, and 7 miles from the shrine, at the point where the largest floods disappear in the sand and the most northern living poplars are found, we came upon the southern houses of an ancient town. Stein believes it to have been abandoned about 300 A. D. The remnants of the town consist of sites strewn with pottery, the remains of orchards, full of fruit-trees, and the white poplar, a "stupa" or Buddhist shrine of sun-dried brick, and the beams and lower walls of ancient houses, of which I counted 116. The town was large and prosperous. It was inhabited for a long time, as appears from the nature of the ruins, and the size of the trees. Its date is known from coins, and from many documents in the Kharosthi tongue. These are written upon wood, and are found in the various forms shown in the [accompanying] illustrations. Accounts, official orders, memoranda, and letters were written upon strips of wood of various carefully defined shapes. Data to be kept for future reference were recorded on strips like A, E, G, I, and L, which were filed away in rows, or were hung upon strings run through the holes at the pointed ends. The most interesting specimens which I found are C and D, parts of two letters. The communication was written upon the concave side of a strip such as C; and upon the convex side of a complementary strip of exactly the same size. The two were then placed face to face, so that the writing of both was concealed. Next, the address was written upon the outside of the concave sheet of the unique letter. Finally, a string was run through a hole in the concave sheet, and brought around through slots to a square depression such as that of D in the convex sheet. There it was sealed with clay, and stamped with a seal like those of the illustrations on the cover of this volume, and was ready for the postman. * * *

Far out in the sand, 6 miles beyond the most remote ruins, I found some bits of slag from furnaces, and two mealing-stones. * * * The guide, old Abdullah, had brought us to see some sort of brick fire-place which he had discovered when he visited the place a year before on a treasure hunt. He described the location with great precision, and led us to a spot where we found traces of his camp, but he could not find the fire-place. We searched in all direc-

tions for two hours; and while he was away, out of sight, I found the stones and the slag, which convinced me that the man had not been lying. * * *

The stones and slag which we found, apparently belonged to a time more ancient than the ruined houses. * * * It is possible that it represents a town more ancient than the Niya of the Kharosthi documents, or at least the part of a single town which was abandoned at a very early date, just as Rawak was abandoned before Dandan-Uilik.

The condition of the vegetation agrees closely with that of the ruins. To the end of the present flood channel it is vigorous; a little farther out in the desert among the upper ruins, the great majority of the poplars are dead, but retain their branches, and the half-dead tamarisks form mounds 10 or 20 ft. high; among the main ruins the poplars have been reduced to mere trunks with few or no branches,



A, E, G, H, DOCUMENTS ON WOOD FROM THE NIYA RIVER SITE. B, INSCRIBED AND PAINTED BOARD FROM KHADALUCK. C, D, WOODEN LETTERS (EPISTLES) FROM THE NIYA RIVER. F, MANUSCRIPT FROM KHADALUCK.

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

and the tamarisks are largely dead, although a few still survive on mounds 30 ft. high; and finally, from the area of finely comminuted pottery to and beyond the meal-stones, the poplars are mere stumps 5 or 6 ft. high, or have been broken off by the wind even with the ground, and the tamarisks have practically all perished, after, in some cases, forming mounds 50 or 60 ft. high.

In concluding the chapter on *Keriya and Niya*, Mr. Huntington says:



HALF-OPENED ANCIENT GRAVE OF POPLAR POSTS ON THE EDGE OF THE
ZONE OF GRAVEL, NEAR THE KURUK DARIYA

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

If we suppose that the climate of Central Asia has grown more arid during the period covered by history, all the difficulties [of explaining the abandonment of these cities] disappear. Under less arid conditions, the Niya River would not only be larger, but one or two small streams, which now wither to nothing in the desert to the east, would join it below the modern oasis. The water would be much more free from salt, for a relatively small portion would flow underground. As aridity increased, outlying settlements would be abandoned in the order of their remoteness, and the vegetation around them would gradually die. When the remoter oasis had been deserted, it may have happened that the Niyang of Hwen Tsiang persisted for many centuries on the site of modern Niya. Finally, before the time of Marco Polo, 1295 A. D., it, too, must have decayed and vanished, perhaps, because of slowly increasing salinity which gradually ruined the fields, as it is now doing once more, after their recovery during a long period of rest. It is, perhaps, not insignificant that in one of the wooden documents found by Stein in the main ruins, "we read that all the 'Shodhagas' and 'Drangadaras,' evidently local officials of the district, are complaining of the want of water."

We reproduce a cut of an ancient grave pictured by Mr. Huntington, which is of special interest because of the crude female figure carved in wood which stands at the head of the grave. This grave is made of poplar posts and stands on the edge of the zone of gravel, near the Kuruk Dariya. This carved female figure calls to mind the large number of carved female figures which are found in connection with ancient graves in Southern Russia, as described by Vladimir Riedel, in *RECORDS OF THE PAST*, Volume V, pages 35 to 39.

The few fragments of archæological and historical matter, which we have quoted or referred to, give only a slight idea as to the character of the book. The anthropologist will find an enormous amount of valuable information, and to the student of geography, physiog-

raphy, and climatology it will read like a novel. However, it is not necessary that you be a student of any of these special lines of research in order to find the volume full of interest, for it is specially adapted to the needs of the general intelligent reading public, to whom we gladly recommend it.

FREDERICK BENNETT WRIGHT.



PALESTINE EXPLORATION FUND

AT GEZER Mr. Macalister has found a second "high place," having standing stones like the first, and near this he has found a foundation sacrifice. The stones stand in a row 44 ft. long. The largest is about 18 in. square and over 7 ft. high. The sacrifice was found in a small pit lined with potsherds. Inside were found a few sheep's bones, the leg-bone of a cow, and the head of a little girl about 2 years old. It is clear that we shall have ere long several "high places" to study in different parts of the country, and at Gezer the fact of infant sacrifice has been fully demonstrated. In both these respects the Scriptures are proved to be true after waiting so long for verification.

Mr. Macalister also reports the discovery of a seal, and the old Hebrew letters on it are plain, but the name is not yet certainly read. A new form of the letter *Teth* is on the seal, which occurs on a jar handle. The most important object in this report is a tablet of the zodiac, and much study will be required to bring out all its details. A Roman bath adds a new chapter to the history, which must sometime be written to tell the whole story of Gezer from its beginning to the Crusades.

Professor Sellin made a fortunate beginning at Jericho, and deep interest will be felt in the excavation of that place. It is singular that he found at once several clay tablets made ready for writing, but not written upon. Having so well entered upon his work he must cease for a time in order to raise needed money. This seems too bad when a firman is running. Our organization has so far been free from such a loss of time and opportunity.

While at Jerusalem Mr. Macalister studied an interesting mosaic near the Protestant cemetery. It contains no inscription, but shows very beautiful work.

The discussion of Zion continues. It seems that there is no doubt that the Jews identified Zion with the temple hill, and how the name came in modern times to be fastened on the western hill is a question not yet solved. But may not the name have been originally attached to it and only transferred temporarily to Moriah in Hebrew poetry, which pictured the temple as a kind of citadel?

THEODORE F. WRIGHT,

Honorary U. S. Secretary.

42 Quincy Street, Cambridge, Mass.

BOOK REVIEWS

THE HISTORY OF BABYLONIA AND ASSYRIA*

DURING the last few years the writings of Dr. Hugo Winckler, of the University of Berlin, have been much discussed by the archaeologists and clergy of this country, so that, although many have read of, but few have actually read his writings on the history of Babylonia and Assyria, and the relation of Biblical history thereto. Under these circumstances it is especially fortunate that we have available an English translation of his book *The History of Babylonia and Assyria*. We are indebted for this translation to Dr. James A. Craig, of the University of Michigan, who has also added many important notes.

Doctor Winckler has shown good judgment in the treatment of this subject, having condensed the results of the various Oriental excavators into a single volume without cumbering it with a mass of detail which, although important to the Assyriologist, would pall on any but a specialist in this subject. In some cases, possibly, he has carried this too far and omitted reasons for his statements which even a wayfaring man would like to know.

The history of Babylonia is traced from the first peoples of this region of whom we have any knowledge—the Sumerians—to the fall of Babylonia. Of the Sumerians we know almost nothing except their language. However, as they were the “inventors of the cuneiform writing and the originators of Babylonian culture,” their importance is evident. “For long after the Sumerian ceased to be a spoken language, when the most varied peoples had settled in the Babylonian plain, and had passed again in turn from the stage of its history, as the old Sumerians themselves had; when the rôles of the different Semitic peoples were ended, when Persians, Macedonians, and Parthians still ruled there—almost to the beginning of the Christian era—the Sumerian language continued to be cultivated in Babylonia in connection with the sacred cult. * * * Inscriptions and religious texts in the Sumerian language have descended to us from the IV millenium B. C.”

He considers that in 3000 B. C. Babylonia reached the zenith of her development, but of this earlier period we know almost nothing. From this time on, however, we are able to trace a fairly connected history, although there are many gaps to be filled and much additional information is still needed. Most of our knowledge is drawn from “royal that is official reports,” and these are very unsatisfactory,

**The History of Babylonia and Assyria*, by Hugo Winckler, Ph.D. Translated by James Alexander Craig, Ph.D., pp. xii, 352. Map. Charles Scribner's Sons, New York.

for "in these the king does everything, even when he is no more than a puppet in the hands of his officials."

The most interesting chapter of the book, at least to the majority of people, will be that on the *Historical Retrospect and Outlook*, which closes the first division of the book, that on Babylonia. The spiritual side of the Babylonians, as discussed in that part of this chapter devoted to religion, is worthy of careful consideration, even though his conclusions may not seem satisfactory. It is difficult enough to gain a correct idea of the true religious beliefs of the present generation, but here we have to study this intangible subject from fragmentary records left by either the priesthood or the kings.

For the next division of the book—Assyria—we find that there is much more available material and more detailed information, for, as he states, the "rise of Assyria took place in a time upon which the full light of history falls, or which can be illuminated without difficulty by the excavations."

The fall of Babylonia was due to the mercenary character of its army, which was the only force which held the heterogeneous parts of the country together. There was no national life or feeling. Assyria's power, on the other hand, "lay in her army and her people." These worked together. When she became "Babylonianized and was ruled over by a military and priestly cast, supported by mercenary troops, and without a national population, she was doomed to disappear." By the time of Sargon II, 722 to 705 B. C., Assyria was held together solely by "mercenary troops gathered from all lands and provinces." These were loyal to the king as long as money and plunder were abundant.

From this time on the decline was rapid until the fall, which was followed by the New Babylonian-Chaldean Kingdom, which lasted but a short time, and is briefly treated in the last division of the volume.

The full index to this work is a very important feature, which makes the vast amount of material compressed into the book easily available. Also the short summaries of the kings and the dates of their reigns, so far as our knowledge will permit at the present time, which are scattered through the volume, add greatly to its value.

FREDERICK BENNETT WRIGHT.



TEMPLE OF LESESEBI.—It is reported that Prof. J. H. Breasted, of the University of Chicago, has discovered a structure called the Temple of Lesesebi. It lies in Nubia, at the foot of the Third Cataract of the Nile, a region isolated by cataracts and wide plains.

OUTLINES OF THE HISTORY OF PAINTING*

MANY books on the paintings of the great masters, and the art of different eras, have appeared in the past, but no concise, comprehensive work, such as this volume by Dr. Edmund von Mach, entitled *Outlines of the History of Painting from 1200-1900 A. D.* In fact, the history of painting from the earliest time is considered, for the *Introduction* is a brief statement of the development, or rather lack of development, of painting as an art prior to 1200. Our knowledge of the earliest paintings, aside from those on vases, which more properly belong to ceramaics, and "colored drawings," such as we find in Egypt, is very fragmentary. The development of the art, as we now understand the term, can truly be said to have begun in the XII century A. D. Doctor von Mach aptly remarks that "if we were to speak of art, not according to periods of history—Egyptian, Greek, early Christian, Renaissance, and so forth—but according to natural divisions, we should call the first the period when men drew according to their thoughts, and the second period when they painted according to their vision. * * * Roughly speaking, the first period comprises antiquity and the Middle Ages. The second period begins with the Renaissance in Italy and enters into its latter stage during the XIX century."

The book is divided into three parts, of which the first is devoted to tables giving the names and dates of birth and death of the great painters and the schools to which they belong. These are arranged by countries, from Italy to China and Japan. The second part is devoted to a list of artists and a pronouncing vocabulary, with cross references to the tables of Part I, thus making these two divisions of the book doubly valuable and convenient.

Important as these tables are to any who anticipate visiting Europe, where they will wish to visit the best of the art galleries, the more general interest in the book will center in the last part, where Doctor von Mach gives a brief but interesting "account of the history of painting," in the different European countries, America and Japan. Here are mentioned the great moving spirits in the development of painting in the various countries and the principles and characteristics of these painters, which they infused not only into their own work, but into the very art life of their country and age.

Doctor von Mach is very happy in his choice of words to express briefly his ideas in a most pointed manner. As an example, what could better express the general characteristics of Rubens than his remark that: "A consumptive Venus à la Botticelli is inconceivable in

**Outlines of the History of Painting from 1200-1900 A. D.* By Edmund von Mach, Ph.D. Boston. Ginn & Co. 8 vo. 186 pp., folded map, and tables.

connection with Rubens. The idea of sickness did not exist in his world of thoughts, except in his first Italian period, where it may have crept in at times as the result of unconscious imitation?"

The broad view of the subject taken by Doctor von Mach is shown in his last chapter on Chinese and Japanese painting. Although a high position has always been given these countries in regard to wood and ivory carving, beautiful vases, and delicate and artistic blending of colors, yet as countries whose paintings and painters were worthy of serious consideration, few art critics, at least until recently, have thought. He says:

Japanese painting is an inspiration to the foreigner. It has had its periods of greatness and of decline, and during the latter the conventionality of the native style has aided in making its standard of art exceptionally low. In the finest periods, however, the great successes of the masters have demonstrated that the character, both of the man and his conceptions are of greater importance than the particular style which his traditions and environments place at his disposal. The greater the skill which an artist has the greater will be his art, provided his skill is accompanied by an equally exalted personality. No undeveloped man, even with supreme skill, can be a great artist.

Every one who is even casually interested in the subject of art will find the text of this volume full of interest, while the tables and map will always be valuable for reference.

FREDERICK BENNETT WRIGHT.



THE DISCOVERIES IN CRETE*

FREQUENT examination of maps, likewise of chronological tables, becomes a very necessary adjunct in pursuing the study of the progress of civilization and the development of mankind. A well-developed understanding of the geography and the physical conditions surrounding a locality will the more readily enable the student to properly group the essential conditions as they may be presented from the viewpoint of a writer upon archæological discoveries. This is particularly true when we take up Professor Burrow's recent work on the *Discoveries in Crete* and their bearing on the history of ancient civilization.

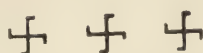
The work of excavation has been in progress on the Island of Crete for many years and the results have, within the past 6 years, become almost sensational at times. New material of the deepest archæological interest has been added to former discoveries at such a rapid rate that some such work as Professor Burrows has now given us was a necessity. His own estimate of the presentation which he makes of the subject may properly be given in his own language:

**The Discoveries in Crete and their bearing on the History of Ancient Civilisation.* By Ronald M. Burrows, Professor of Greek in the University College, Cardiff. With illustrations. New York: E. P. Dutton and Company, 1907. 8vo., 236 pp.

It is this help that the present book attempts to give, and the moment of its appearance, during a partial lull of excavation, is an opportune one. There is a chance to take breath and gather up the threads, with the possibility that the next month's spade-work will not put us out of date. It is written, as far as possible, in untechnical language, and does not expect its readers to know by instinct what is meant by a "Schnabelkanne," or a "Vase à étrier." It aims at giving a picture of Cretan civilization as a whole, and at presenting it in a manner that will make it alive and real. Reference, however, to the original publications have been given throughout, and it is hoped that the book may thus serve, not only as a general introduction to the subject, but also as a bibliographical guide to students who wish to pursue it seriously. Its main object is to give a clear and comprehensive account of where we stand, rather than to embody the writer's original research.

To summarize the work of this author would be likened to an effort to further condense a sentence already consisting of but 3 words, and to select from its pages some of his most interesting deductions would afford so bewildering an array that such an attempt could only result in presenting the whole work page by page.

THOMAS FORSYTHE NELSON.



EDITORIAL NOTES

BRONZE HEAD FROM NAMUR, BELGIUM.—Near Namur, Belgium, a curious bronze head was recently found. It is a man's head with a curled beard, and the ears of a he-goat, one of which is turned toward the face. It is probably Gallo-Roman work of the II or III century A. D. It is thought to be the only male Roman head with long hair.

DOCTOR KYLE IN EGYPT.—Dr. M. G. Kyle, one of our consulting editors, sails from New York, December 7, for Naples. He will first visit Rome, where he will see some of the recent archaeological work. Later, he expects to go to Egypt for two months of Egyptological research. We expect notes from him concerning his work during the winter. His address will be, Care of the American Mission, Cairo, Egypt.

PORTRAIT HEAD OF AUGUSTUS.—The most important addition to the Department of Classical Art in the Boston Museum of Fine Arts, during 1906, is a fine marble head of Augustus. A large part of the upper left side of the head is missing. It is an unusually characteristic portrait. The modeling of the face is realistic, and thus in contrast with the idealized head of Augustus from the Despuig collection already in the museum.

EXCAVATIONS NEAR BASEL, SWITZERLAND.—Excavations have recently been carried on in the Roman fort at Kaiser-augst, near Basel, Switzerland. The western gate, fragments of arches, and a drain were discovered. At the time of the invasion of Alemanni (354 and 357 A. D.), the fort was abandoned, but was re-fortified under Julian and Valentinian I, to be finally abandoned in 402 A. D.

VIA TRIUMPHALIS.—North of the Vatican a section of the Via Triumphalis has been found in excellent condition. Near by a large sarcophagus of the IV century has been uncovered. The decoration of the front is an attempt to adapt the grandiose arabesques of a temple frieze. An inscription on another sarcophagus shows that the senate still had its *scribae* in the IV century. Older tombs and inscriptions have been found beside the Via Triumphalis.

A ROMAN MONUMENT.—A hill near Nice, France, which in Roman times lay between the Via Aurelia and the sea, was the object of investigation during 1906. Sculptured stones, apparently part of a gateway, pottery, and a few coins of the I, III, IV centuries A. D., were found. A close study of the Gallic arms on the sculptures leads to the conclusion that the monument was erected during the reign of Augustus.

ADDITIONS TO THE MUSEUM AT SYRACUSE.—Among the additions to the Archæological Museum at Syracuse, Sicily, is a terra-cotta equestrian figure of the early V century, which was part of an acroterion, a flying Nike of the V century, and a curious *xoanon*; the two latter are unique among Sicilian terra-cottas. One of the vases added is a black-figured cylix, with youths on foot and horseback, and a sphinx to which clings a man in the position of Odysseus, escaping from the cave of Polyphemus.

ROMAN CAMPS.—During the years 1903-1906 the Provincial Museum at Bonn carried on work chiefly at Remagen and the "Alteburg," near Cologne. Both were *castella*, built in the time of Tiberius, with palisaded earth wall and trenches, and rebuilt in stone about 70 A. D. The Alteburg was abandoned about 270 A. D., and the other included in a larger stone wall. These belong to a system of defensive works. Excavations on the Fürstenburg, near Xanten, led to the discovery of a Roman fort like that at Remagen.

OBJECTS OF THE VIKING PERIOD FOUND IN YORK.—During the autumn of 1906, there were found at York, England, a few yards from the left bank of the Ouse, certain objects which are considered as belonging to the Viking period. Some of these were such as had not been previously reported in England, the most

interesting being a brass chape of a sword scabbard, showing an open zoöomorphic interlacing design ending in a conventionalized animal head, which fastened the chape to the material of the scabbard.

ROMAN REMAINS AT NUMANTIA, SPAIN.—At Numantia, during 1906, further work revealed evidences of Scipio's blockade of the Iberian city, previously discovered. Five of the 7 forts mentioned by Appian were found, as well as camps and parts of the wall of circumvallation. The positions seem to have been chosen and fortified for defensive purposes. The barracks and other buildings were made of stone. No other such military structures are known previous to the permanent camps of imperial times around Novæsium and Carnuntum.

MOUND BELONGING TO THE BRONZE AGE.—The Somersetshire Archæological Society began, in April, excavations at the Wick Barrow in Stoke Courcy. The work so far seems to show that the mound belongs to the bronze age, for it contains two fairly perfect burials with pottery characteristic of that date. Below these is a curious wall, the use of which is not yet apparent. There was also at least one interment, seemingly unconnected with those of the bronze age. It is certain that the Danish chieftain, Hubba, was not buried in this mound.

GREEK TEMPLE AT PRINIAS IN CRETE.—Remains of an archaic Greek Temple are reported from Crete. The east side was surmounted by a pediment containing statues, seemingly a procession of warriors carrying shields and lances. Fragments of votive figures and cult images were also found. Among these is a figure of Rhea, seated on a throne. The base of the throne, which was also uncovered, is ornamented with representations in relief of lions and stags. Arrow and lance-heads, knives, and double-axes were dug up on the same site.

ANTIQUITIES IN SANTO DOMINGO.—President Morales, of the Republic of Santo Domingo, has taken steps for the preservation of the archæological objects in that country, and for the establishment of a national museum for that purpose. He declares that as the archæological objects found on their territory pertain to the aboriginal inhabitants of the Republic, they properly belong to the Republic as a whole. No private collections are to be allowed in the future, and no private collections previously made are to be permitted to leave the country.

ROMAN CITY OF CORSTOPITUM, ENGLAND.—Excavations in this site, near Corbridge, on the north bank of the Tyne, revealed a large formidable ditch, internal buildings, which can be traced with remarkable completeness, the walls in places standing 6

ft. high near the ditch. Traces of the bridge over the Tyne were also found. There was a splendid example of hypocaust, many of the pillars standing to the original height. These were of stone with pottery bases. A drain, in excellent state of preservation, and a number of coins of the III and IV centuries A. D. were also unearthed.

A NEW STATUE OF A NIOBID AT ROME.—In June, 1906, a perfectly preserved statue in Greek marble of one of the daughters of Niobe was found in the Gardens of Sallust. It had been concealed in an underground gallery, southeast of the Nymphaeum, close to the northern angle of the Servian Wall. G. E. Rizzo thinks that this statue probably belongs with the Niobids in Copenhagen, but that instead of being a Greek original of the V century it is the work of an eclectic sculptor about the I century B. C. The treatment suggests the so-called Venus of the Esquiline. P. Gauckler suggests that it is the work of a Hellenistic sculptor in Asia Minor.

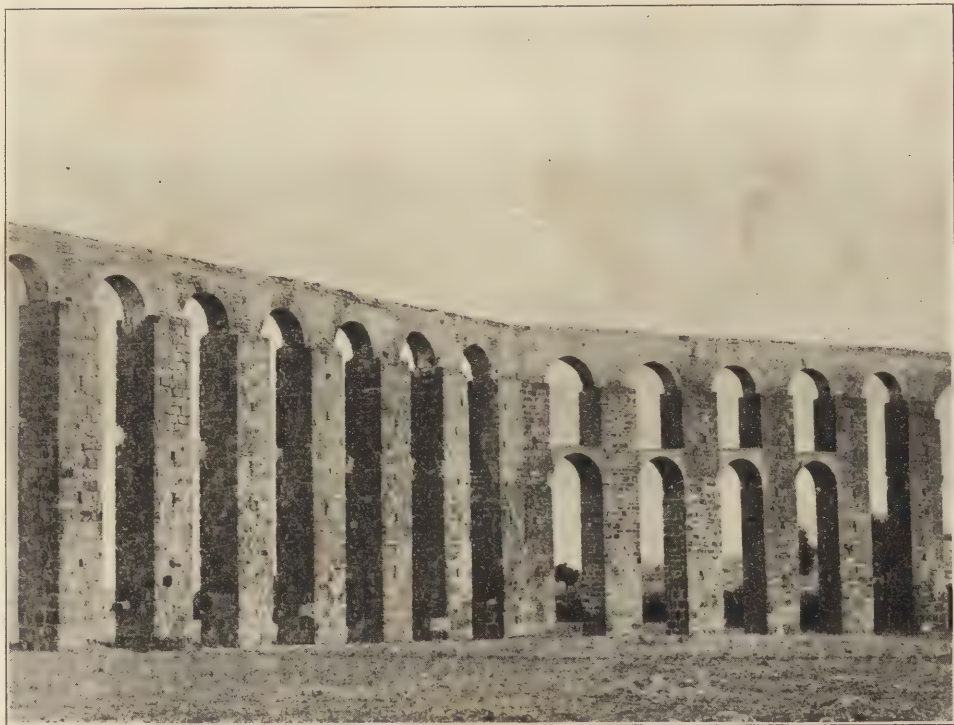
FINDS AT ROME.—Reports from Rome state that at the foot of the Tarpeian rock a statue of an old woman carrying a basket has been found. It is realistic in style, belonging, probably, to the same period as the statue of the old woman with the water-jug, in the Capitoline Museum. It seems likely that such statues as these were used to adorn the market halls in the neighborhood. On the slopes of the Palatine, facing the Circus Maximus, remains of a temple of the VI century B. C., dedicated to Victory, were brought to light under the direction of Prof. Dante Vaglieri. Near Santa Maria della Vittoria remains of the oldest walls of Rome have been discovered.

EGYPTIAN WORK OF THE METROPOLITAN MUSEUM.—Mr. A. M. Lithgoe, of the Metropolitan Museum, has undertaken excavations at Lisht, where are the pyramids of Amenemhat I and Usertesen I, of the XII dynasty. His work has been on the east front of the former pyramid. A layer of the remains of the Roman period has been removed, and the remains of the pyramid temple partly uncovered, as well as the mastaba of Antef-aker, an important official of that time. The only royal stele yet found is the "false door," or offering stele of the temple. The temple altar and many architectural remains and inscriptions have also been recovered. The temple was evidently restored at some time.

NAVAHO DICTIONARY.—The Franciscan Fathers at St. Michaels, Arizona, are preparing for publication a Dictionary of the Navaho language. It will contain a series of articles on Navaho religion, ceremonies, arts, and industries, each followed by a list of Navaho terms used in connection with it, and more or less detailed explanation. The work will include lists of Navaho names for persons, places, stars, plants, and animals. It might be called an ethnological dictionary. A limited edition is to be printed. Any desiring

to secure copies should write to Mr. Stewart Culin, Brooklyn Institute Museum, Eastern Parkway, Brooklyn, N. Y., for further information.

AQUEDUCT NEAR TIMGAD.—During the last few years Timgad, in Algeria, has been attracting considerable attention since the French archæologists have been conducting extensive excavations. Museums have been opened in Carthage and Tunis, where the smaller objects discovered in North Africa are preserved. The Roman city



AN AQUEDUCT NEAR TIMGAD, CONSTRUCTED BY THE ROMANS AND RESTORED BY THE ARABS

Courtesy of The Scientific American

of Timgad is found to have been laid out carefully with streets intersecting at right angles and houses usually separated by open spaces. Like all Roman cities it was well supplied with water and one of the old aqueducts, having been restored by the Arabs, still stands in good condition, as is shown in the accompanying illustration.

ROMAN MONUMENT IN AUSTRIA.—During the last few days of July some very interesting relics were discovered at Saifnitz, near Tarvis, in Austria, where excavations brought to light several portions of an old Roman monument. These formed a complete portion of a funeral monument about 12 ft. long. Half-length representations in *alto rilievo* of a Roman and his wife are set in a niche

cut rectangularly and longitudinally from a large block of stone. This rests on a step-shaped pedestal. The niche is covered by a gable-like roof ornamented on top with scroll work; the sides are decorated with reliefs. In front is an inscription in memory of the deceased, and the giver of the monument.

CROWN LANDS GIVEN BY THE PTOLEMIES.—A number of the Greek papyri from Egypt, translated in part I of *Papyrus grecs*, a volume edited by Pierre Jouguet, throw light on the tenure of Crown lands given to the Macedonian and Greek soldiers by the Ptolemies. Heretofore, it had been inferred that these gifts from the Crown did not become hereditary, but reverted to the king. This point has been in part cleared up by these papyri, which show that "upon the death of a 'lot-holder,' his land was taken up by the Crown, till the heir satisfied certain conditions within a stated time. It is not told us what these conditions were, except that the son must prove his descent."

PRE-ROMAN DISCOVERIES IN SPAIN.—Under the direction of M. Pierre Paris there have been found at Elché and Cerro de los Santos, in Spain, a number of pieces of sculpture of the pre-Roman period. Oriental and Greek influences were here blended with the native elements, thus producing work which, while showing Oriental elaboration of style, was executed with Greek perfection. The most important pieces yet found are an elaborately made bust from the stone of the region, a female statue and a head with a high tiara. The bust shows traces of color on the lips, head-dress, and draperies. The eyeballs are hollowed in order to receive an incrustation in imitation of the human eye. These, with others, have been removed to the Louvre at Paris.

TEMPLE OF MENTUHETEP AT DEIR EL-BAHARI.—In the course of the work carried on by the Egypt Exploration Fund, during 1906, the temple of Mentuhetep, of the XI dynasty, was further excavated. Back of a pyramid base, rising in a columned hall, there was found an open court with a colonnade, then a hypostyle hall, not yet completely excavated. In an open court previously discovered, a subterranean passage, 16.4 yds. long, was cleared. This ends in a room built of large granite blocks, in which is a large alabaster shrine. The shrine, now empty, seems to have been regarded as the dwelling place of the *Ka* of a king. There are evidences of offerings before it and a stele at the entrance of the passage refers to daily provision of food and drink for the cave of Mentuhetep.

DISCOVERIES AT CARTHAGE.—Rev. P. Delattre's work at Carthage has been rewarded by a number of exceedingly interesting discoveries. Among them are a number of sarcophagi with the

top cover sculptured in relief with life-sized figures, carved in marble and beautifully tinted. One of these, found at a depth of 25 ft., has a woman, in Greek style, executed on the cover. The flesh parts are highly polished, the eyes painted, and the hair gilded. Another sarcophagus bore the figure of a "person supposed to be a priest," with abundant hair, curling beard, and a long robe with short sleeves. M. Delattre found that, although the coloring on these sarcophagi was very bright when first found, it quickly faded on exposure to the light.

SURGICAL INSTRUMENTS IN GREEK AND ROMAN TIMES.—In a recent book by Dr. John Stewart Milne, on *Surgical Instruments in Greek and Roman Times*, he points out that surgeons in classical times were used to keen instruments, many of them being of the finest steel; in fact, he claims that it was difficult for ancient iron-founders not to turn out steel of the finest quality rather than iron, on account of the methods they employed.

The Romans were a clean-shaven race, and so must have had good instruments and skilful barbers. He shows that shaving and cutting the hair were formerly looked upon as important means of treatment in several diseases. The barber and the surgeon, therefore, acted in conjunction, and were in many cases identical, years before the advent of Christianity.

WORK IN WYOMING.—During the past summer Harlan I. Smith was able to begin investigations in Wyoming, part of the "vast neglected field for archæological research" in which he is endeavoring to interest the public. He visited many prehistoric stone quarries, some of which had not been known before. Many stone circles marking the site of tepees were noted by him. He thinks that these stones were used to hold down the skin covering of the tepee. Pictographs in red and black, as well as petroglyphs cut on the cliffs were noted, and in many cases photographed. Some represented horses, and others buffalo. True pottery he found only in rare instances, and these in the southern part of the state, without exception. Soapstone dishes occur especially in western Wyoming, some of them being of a type apparently unknown heretofore.

THE ORIGIN OF THE AINU.—Rev. John Batchelor, who has for 30 years made the Ainu his special study, considers their language to be Aryan. He no longer believes in the existence of a dwarfish pre-Ainu race of pit-dwellers. With other Japanese archæologists he now thinks that the Ainu themselves were pit-dwellers, and that they used pottery, paint, and flint knives, and lived in the Stone Age. They were conquered by a people, possibly of Semitic origin, who used metal and were otherwise well equipped for conquest. The struggle, however, lasted 2,000 years. Traces of the *casi*, or forts enclosed by

fences or embankments, used by the Ainu in defense against their conquerors, are found all over the Island of Yezo, as well as in northern Japan. This fact, together with the geographical nomenclature on both islands, points to the conclusion that the Ainu, speaking an Aryan language, once inhabited the whole archipelago.

BONES OF THE URUS, WITH FLINT FLAKES, FOUND IN ZEALAND.—The discovery of the bones of a urus, an extinct animal of the ox tribe, in connection with flint flakes, is interesting because of the light it throws on man's relation to this animal. These bones were found in a peat bog, in northwest Zealand. Certain of the bones are scarred; that the wounds were made by flint implements is clear because fragments of flint are imbedded in the scars. One scar was old, the bone having grown over the flint, but the other was fresh at the time of the death of the creature, probably being part of the wound which caused death. Urus bones had previously been found in small numbers in kitchen-middens of the older Stone Age, proving that man in some way caught this animal, possibly by use of pitfalls, but now it appears that sometimes, at least, he hunted him with flint implements.

NEW SCHOOL OF ARCHÆOLOGY AT MOSCOW.—The Russian Ministry of Education has sanctioned the founding of an Institute of Archæology and Archæography at Moscow. It is to rank as a university, open to graduates of Russian or foreign universities. It aims to prepare qualified archæologists and archæographists, or persons skilled in the preservation and interpretation of historical archives, libraries, public and private, and the like valuable collections demanding special knowledge. The institute has the right to conduct its own affairs, subject, however, to the veto of the Minister of Education under certain circumstances. The last year of the three in the course must be spent in practical work, either in Russia or elsewhere. The degrees given will be Doctor of Archæology or Doctor of Archæography, according to the studies pursued. Some of the men connected with the institute are Doctor Uspensky (the director), Doctor Fleischer, Professor Grot, and Privat-Docent Visotsky, who is the secretary.

THE GROVE OF FURRINA.—In July, 1906, workmen discovered in the Villa Sciarra on the slopes of Janiculum, Italy, the grove of the old Roman nymph, Furrina. Several inscriptions, found in a semi-circular hollow, are dedications to Syrian gods, including Adadus, Jupiter Malegiabrudis (hitherto unknown), and others. A richly carved altar, 37 by 14.56 in., decorated with horned heads at the angles, is the principal object. It bears the most important inscription, written in Greek characters, which mentions Jupiter Ammon and the Sidonian Kypris, as well as the Nymphæ Furrinæ. Be-

low the inscription, birds pecking fruit and heads of Erinnys form part of the decoration. This is the spot where Caius Gracchus died. At about 300 yards distant an inscription is recorded as found, which is sacred to Jupiter Heliopolitanus and Genio Forianarum. As this region was once occupied by Jews and Asiatics, probably some merchant owned the site and set up this and other altars dedicated to Oriental divinities. Two Greek pentameters indicate that a certain Gaionas built a fountain to supply water for the sacred rites.

WORK AT AKSUM.—More complete reports of the German work at Aksum in Abyssinia have been published in *Archäologischer Anzeiger*. Aksum was the capital of a Semitic trading colony, so the early monoliths and inscriptions are of Sabæan and Æthiopian, not Egyptian origin. In the 1 century A. D. Greek influence came in. Later, in the IV century, the kingdom became Christian to be overcome by Mohammedans in the XVI century. The characteristic pagan remains are monolithic stelæ and honorary stone thrones with inscribed slabs. Among the monolithic stelæ and obelisks of many types and sizes, some standing and some lying down, is one taller than the tallest known Egyptian obelisk. This is one of a group carved in relief to represent towers of several stories, with windows and doors in exact imitation of the native architecture combining wood and stone. These structures have wooden beams running through the stone for the sake of stability. The church of the monastery of Debra Damo, built on an isolated rock, accessible only by rope, is constructed on this plan, and contains the oldest timbers known to exist.

WORK OF THE BRITISH SCHOOL AT SPARTA.—At Sparta the British School has identified the site of the temple of Athena Chalkioikos by finding 3 roof tiles stamped with part of the name of that temple, and further by the discovery of bronze nails and fragments of bronze plates. Among the 10 bronze statuettes found, the finest is a V century representation of a trumpeter about 5 in. high. There are also bronze bells with votive inscriptions to Athena and two archaic inscriptions, one of them containing 52 lines referring to athletic victories.

Work has also been continued on the site of the sanctuary of Artemis Orthia, where two buildings have been excavated, a temple built probably in the VI century B. C., and lasting until the III century A. D., and a Roman theater built about the end of the II century A. D. The facade of the temple was included in the theater, occupying the position of the stage building. In the orchestral area were found the remains of the altar built in the same period as the theater. Beneath this altar were blocks belonging to the altar of Hellenistic times, and with them burned refuse from sacrifices. From the ex-

cavations it is clear that the cult of Orthia began in the earliest times with a large altar, which was covered up when the temple was destroyed in the VI century B. C., and a new one built at a little distance. In Hellenistic times this temple was rebuilt and lasted on the same site until the end of paganism.

ABORIGINAL ROCK-CHIPPINGS IN SOUTH AFRICA.—

An interesting series of rock-chippings which have been discovered on the Farm Blauwboschdrift, Herbert, South Africa, is described by Mr. J. P. Johnson, in *Man*, for October. The discovery was made by Mr. Johnson and Professor Young in 1905. In one case the aboriginal artists had "selected a glacially-polished surface on which to chip their pictures of man and beast." "The figures were confined to the upper half of the slab, and numbered close on 200." Most of the subjects are animals, but there is one remarkable exception—the figure of a plough. There are three horsemen of conventional design, and three "humped oxen," and a few purely fanciful animals. "The only probably wild animals seem to be the ostrich, hyæna, which is very faithfully depicted, considering the limitations of this kind of work, and a bird of uncertain species."

"These chippings have weathered to the same color as the rest of the rock surface. On the same slab there are one or two figures, which are evidently much more recent. In them the chippings are comparatively fresh, and show up well against the dark background. They are larger than the originals, of which they are imitations, and are markedly inferior in execution. None of the chippings, however, can be ancient. Neither the plough nor the horsemen are compatible with any antiquity.

"Close by is a rock-shelter where the artists probably lived. It is situated in a low cliff of boulder-shale, and has been excavated in a soft patch, immediately under the hard layer of conglomerate which there forms the top. It is very likely that this was originally a small natural shelter, which was afterwards artificially enlarged. There can, however, be no doubt that the whole of the rock-shelter as it now stands was artificially hollowed out. It was formerly much bigger, a considerable portion of the roof at the front having since fallen down. The entrance is choked with slabs and pieces of the conglomerate. There was, unfortunately, no time to make any excavations in search of the stone implements which are almost certain to be there." On a slope about half a mile away, however, Mr. Johnson picked up two almond-shaped palæoliths.

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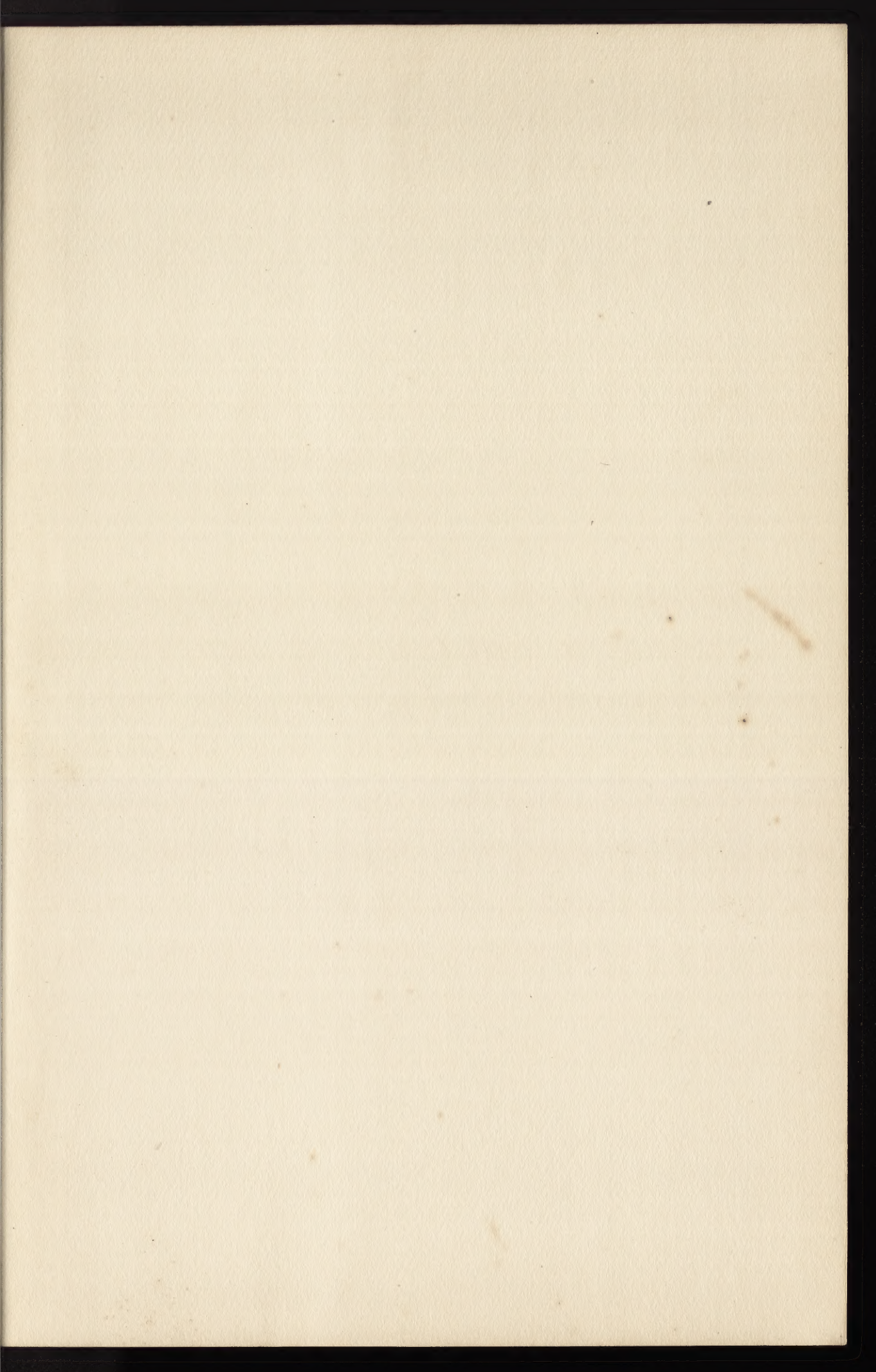
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